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**Service-Related Research Project: An Audit of Ethnicity within the Croydon Memory Service, and, Main Research Project**  
**Latent Cognitive Vulnerability in 'Looked After' Adolescents: a Control Comparison Study**

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**Volume I**

**SERVICE-RELATED RESEARCH PROJECT**  
**AND MAIN RESEARCH PROJECT**

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**Thesis submitted in partial fulfilment of the degree**  
**of Doctorate in Clinical Psychology**

**Institute of Psychiatry, King's College London**

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## **SERVICE RELATED RESEARCH PROJECT**

### **An Audit of Ethnicity within the Croydon** **Memory Service**

**Supervisor: Dr David Matthews**

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## **ABSTRACT**

**Background:** Evidence suggests that certain inequalities in care provision may result from differential access to services according to ethnic minority membership. Hearn (2006) identified that the Croydon Memory Service (CMS) showed good penetration into the local Black and Ethnic minority (BME) community. This audit aims to replicate Hearn's aims and objectives with an updated data set; to investigate whether the range of referrals that the CMS receive continue to accurately reflect the ethnic composition of Croydon's older adult population. In addition, the distribution pattern of diagnostic outcome across ethnic groups, the waiting time (between the receipt of referral and date of initial assessment) and the severity of cognitive impairment at initial presentation for seven ethnic groups will be considered.

**Method:** Information from 3264 referrals was utilised within the analysis, replicating and expanding upon Hearn's (2006) methodology. Expected frequency data was calculated, categorised according to the self-report ethnicity labels available, and compared with the observed frequency data for the corresponding local population, using one-way classifications. Descriptive statistics are utilised to test the assumption that four categories of dementia (Alzheimer's disease, Dementia in Alzheimer's disease - mixed type, Vascular, Other Dementia Subtypes) - in addition to the outcomes of no diagnosis given and psychiatric-based diagnoses - would be distributed evenly across ethnic groups. The mean waiting times (in days) and mean MMSE scores at assessment were calculated and compared across superordinate ethnic groups by means of one-way ANOVA's.

**Results:** Statistical analysis did not demonstrate a significant difference between the ethnic composition of the referrals assessed by the CMS and the Croydon data set. Waiting times did not differ across ethnic groupings. The mean MMSE scores obtained at assessment only differed significantly between the 'White British - Black' and 'Black - Asian' groups.

Alzheimer's was the most prevalent diagnosis observed across all ethnic groups within the sample; the remaining outcomes differ in proportion across groups.

**Conclusions:** These results indicate good penetration into local BME communities, demonstrating good practice and service equality across the different ethnic categories referred to the CMS. The results illustrate achievement of the standards created by the Memory Services National Accreditation Programme (MSNAP) and emphasise that the CMS provides a good prototype of what works in National Health Memory Services. The importance of a specialised service structure and liaison with both the community and primary care is highlighted, in order to increase access to BME communities.

# **1. INTRODUCTION**

## **1.1 Overview**

Identifying inequalities within health service provision is a major priority of the NHS, one that is important to consider when auditing service delivery. Bhui and Bhugra (2002) outlined a model that explains how minority ethnic groups may face differing experiences of health service provision in comparison to the indigenous population; this pathway is described in more detail in section 1.7.

This project aims to update Hearn's 2006 report, examining the accessibility of Croydon memory service to older adults as a factor of ethnic minority status. The aims are to calculate whether:

- each minority group is being accurately represented within the number of referrals received by the service,
- waiting times for assessment fluctuate according to group status
- the distribution of probable dementias and MMSE scores at initial assessment vary across different ethnic groups.

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## **1.2 Rationale**

It is crucial to recognise groups that may be subject to inferior health care delivery, so that service development can focus on ensuring the best quality care is fully accessible to these populations. Rait, Burns and Chew (1996) identified that older adults from ethnic minorities are more likely to experience a 'triple whammy' of problems (socioeconomic status, age and minority group membership), which can then impact upon the quality of health service they receive. Older people from ethnic minority groups are often marginalised in society; they have specific needs that need taking into account and often face challenges regarding language barriers when moving within services (Department of Health [DoH], 2009; Shah,

2009). Various policies have challenged the quality of service provision for older adults from Black and Ethnic minority (BME) communities. 'Forget Me Not' – the Audit Commission's (2002) analysis of mental health service for older people in England and Wales - suggested that services '*may be insensitive to cultural norms*'. In addition to this, the NSF for Older People (DoH; 2001) recognised that '*older people from BME communities need accessible and appropriate mental health services*'. Despite increased research into dementia, little has focused on service provision in older adult BME populations (Milne & Chryssanthopoulou, 2005). In response to these considerations, Hearn conducted an audit in 2006 in order to explore the accessibility of Croydon Memory Service (CMS) to older adults in the local area, according to ethnic group identity. The CMS is a secondary care service that assesses and treats clients with subjective memory difficulties who reside within the London Borough of Croydon.

The Memory Services National Accreditation Programme (MSNAP) aims to assess standards for memory services that have been developed to assist people with dementia; in association with the Royal College of Psychiatrists (2010). The standards were introduced in order to facilitate the improvement of service delivery and ensure that people with dementia and their carers consistently receive good quality care and support. The pertinent overarching principle that MSNAP promotes is: '*fair access to assessment, care and treatment on the basis of need, irrespective of age, gender, social or **cultural** background*' for people with memory problems and dementia (Royal College of Psychiatrists, 2010). MSNAP maintains that it is good practice to conduct an audit every two years within memory services, noting that the ethnicity of referrals is an important area to consider.

The current project was conducted to replicate and expand upon Hearn's (2006) study, using a larger, updated sample from the CMS (3264 instead of 900 referrals) to ensure the CMS is continuing to operate in line with MSNAP standards. This study explores whether the proportion of older adults referred to Croydon Memory Service is representative of the ethnic

composition of the local population. Findings have implications for service accessibility if certain minority groups appear to be under-represented in the CMS population. The distribution of probable dementias across the ethnic groups and waiting times (referral to assessment) for each group were considered. The procedure outlined in Hearn (2006) was employed in this study to explore whether the same results were obtained with a more up-to-date sample. The severity of presentation, according to MMSE scores at initial assessment, was also compared across ethnic groupings.

### **1.3 Croydon Memory Service**

CMS was set up to respond to the need for improved service delivery for people with dementia as identified by the local health authority. It was developed as a comprehensive service model that provides early assessment and intervention for dementia clients and their carers. This service was developed in accordance with standard seven of the National Service Framework (NSF) (DoH, 2001); this standard delineates the need for an 'integrated mental health service' that provides 'effective diagnosis, treatment and support' for people with dementia and their carers. The aims of the service are detailed in Appendix 6.1.

#### **1.3.1 Structure of CMS**

The team operates in accordance with a generic, multidisciplinary framework. Each permanent member of staff is required to assess new referrals in line with a generic working model and care-coordinate cases that require further care management. Cases may then be referred on to specific professionals within the team following assessment, depending on the nature of the specialised intervention required.

### **1.3.2 Referral Route Through the CMS**

#### **1.3.2.1. Referral Criteria**

The client and/or their carers is the first point at which a referral is generated; a party reports subjective concerns about the client's memory that they wish to be investigated by health professionals. These concerns are usually imparted to the GP; referrals of this nature comprise approximately 95% of the referrals to the CMS. Remaining referrals are from other professional services, such as associate Community Mental Health Teams. It is important to note that a high volume of referrals are received from primary care services, this has valuable clinical implications when considering how to improve the accessibility of the service to the local population. Referral criteria establishes that the client must be of working age or older and experiencing persistent subjective memory problems (self and/or carer report), accompanied by difficulties in everyday functioning.

#### **1.3.2.2. Initial Assessment**

Each new referral is discussed at the weekly team meeting and allotted to one of the staff members if considered appropriate. This key worker coordinates the case throughout the client's association with the service. Initial assessments are carried out in the client's home. Home assessments are useful for a variety of reasons; to reduce client anxiety about attending an unfamiliar service, to allow key workers to make a preliminary assessment of the home environment and reduce issues concerning differential accessibility (e.g. mobility problems). The assessments are comprised of two elements. The key worker conducts a semi-structured interview which includes cognitive tests to screen for deficits in cognitive functioning; this is comprised of the Mini-Mental State Examination (MMSE: Folstein, Folstein & McHugh, 1975) and the CAMCOG (intellectual assessment subtest from the CAMDEX: Roth et al, 1986). A second member of staff simultaneously takes collateral history from a significant person in the client's life (e.g. spouse, other family member or close

friend). Any discrepancies apparent in this comparison may provide some understanding of the client's memory problems and/or the extent of their insight into current difficulties.

History-taking is important in both the client assessment and the interview with their significant other. This involves family history of mental and physical health, schooling, occupation and current physical conditions, in addition to medication. A description of current difficulties and their onset is obtained from both parties and psychological factors are also considered (mood, psychiatric symptomatology and quality of life). Proxy measures of daily living skills, carer burden and quality of life are administered during the carer component of the interview.

#### 1.3.2.3. Determination of Diagnosis

Following this initial assessment, the referral is discussed again at the team meeting. This is with the view to making a diagnosis of probable dementia, if sufficient evidence is available, and determining a preliminary care plan for the client. Further investigation may be warranted (e.g. if physical problems cloud diagnosis or the results of the cognitive screening measures are not conclusive) in order to determine the origin of the person's difficulties, whilst considering differential diagnoses. The World Health Organisation (WHO; 1992) provides a concise list of all the differential diagnoses that should be routinely considered in clinical practice (such as depressive disorder and delirium). Additional investigations may take the form of further neuropsychological testing or a referral for a structural head scan for instance. The broad cut-off for the MMSE is 24/30 (depending on the person's educational history) and 79/105 for the CAMCOG, scores equal to or below these thresholds indicate possible cognitive decline in persons over the age of 65. If the scores do not indicate that the client is experiencing cognitive decline, over and above what might be expected based on their age, then they are invited to re-refer themselves back to the CMS in the future, if subjective concerns escalate.

#### 1.3.2.4. Feedback and Care Planning

If a probable diagnosis of dementia is determined then the team creates a preliminary care plan according to that person's presenting needs. This plan is fed back to the client and their significant other during a face-to-face meeting at the CMS base. The plan is amended in collaboration with the client/carers if necessary and a written report detailing the key points of the plan are then sent to the client and their GP. The client has the opportunity to decline receiving the results of the assessment and remain unaware of any probable diagnosis that may have been made.

#### 1.3.2.5. Intervention

Clients that choose to remain under the care of the CMS have the opportunity to choose from anti-dementia (or other psychotropic) medications, social interventions (e.g. access to day centres and/or home care), group involvement (for the clients and/or carers), individual psychotherapy and/or further advice on financial and behavioural support.

### **1.4. Dementia**

#### **1.4.1 Definitions**

Dementia is defined as a decline in both verbal and visual memory, as well as other higher cortical functions. Deficits are most 'most evident in the learning of new information' (WHO, 1993). It is a progressive, neurodegenerative disease caused by organic changes in the brain; such as amyloid plaques and neurofibrillary tangles in Alzheimer's disease or vascular events in Vascular type dementia.

The ICD-10 *Diagnostic Guidelines* (WHO, 1992) are detailed in Appendix 6.2. There are subtle differences between the ICD-10 and DSM-IV criteria for dementia. The latter is somewhat less restrictive, meaning that the former is likely to identify fewer cases as having



probable dementia in a sample population (Henderson & Jorm, 2000). The most common forms of dementia are Alzheimer's disease, vascular dementia, Lewy Body dementia and Fronto-temporal dementia. Dementia caused by other medical conditions, such as Parkinson's disease and Acquired Immune Deficiency Syndrome (AIDS), are also observed within clinical practice.

#### **1.4.2 Prevalence**

Knapp and Prince (2007) used the Expert Delphi Consensus method to produce the best possible estimates for UK dementia-related statistics. They suggested that there were approximately 683, 597 people in the UK with dementia, which accounts for 1.1% of the entire UK population. This may be a slight underestimation due to the lack of information from the learning disabled and NHS 'continuing care' populations. Projections estimate that this number is likely to increase to 940,110 by 2021 and then up to a 154% increase over the next 45 years. Evidence from Matthews & Brayne (2005) suggests that the prevalence of dementia does not vary significantly across England and Wales. Knapp & Prince (2007) estimated that 62% of people with dementia living in the UK suffer from 'Alzheimer's disease', with the next most common subtypes being 'Vascular dementia' and then 'Dementia in Alzheimer's disease, atypical or mixed type'. The distribution of subtypes differs according to gender; with the latter two subtypes being more common in men, whereas Alzheimer's is more likely to be observed in women: 67% compared to 55% in men (Knapp & Prince, 2007). Stevens and colleagues (2002) identified distribution probabilities for the prominent subtypes of dementia within the Islington region, London; Alzheimer's disease (31.3%) and vascular dementia (21.9) were the most common, in line with previous findings. This study demonstrated that diagnoses of probable Lewy Body (10.9%) and Fronto-temporal dementia (7.8%) occur sufficiently frequently to be observed within routine clinical practice.

The incidence of dementia is believed to vary between countries as a factor of economical development, physical and social risk factors (Ferri et al, 2005). Global prevalence estimates suggest that approximately 24.3 million people worldwide have dementia (Ferri, et al, 2005). Projection calculations estimate that these numbers will double every 20 years to 81.1 million by 2040 (Ferri et al, 2005). Henderson & Jorm (2000) reviewed 4 meta-analyses, estimating dementia prevalence rates for both worldwide and non-European populations (Hoffman, et al, 1991; Jorm, Korten & Henderson, 1987; Ritchie, Kildea & Robine, 1992; Ritchie & Kildea, 1995). These studies indicate that the exponential rise for Alzheimer's disease is more marked than for vascular dementia (Hearn, 2006).

Matthews & Brayne (2005) reported that approximately 180,000 new cases of dementia occur in England and Wales every year. These findings, in addition to the global and national projection estimates, indicate that a greater number of people will fall within the age ranges where dementia is more likely, due to an ageing world population (Henderson & Jorm, 2000). The literature highlights the crucial role of further research into older adult service delivery, to ensure high quality care for this growing population.

## **1.5 Ethnicity**

### **1.5.1 Conceptualising and Defining Ethnicity**

Identifying and defining ethnicity can be a problematic process (Bhugra & Bahl, 1999; Shah, 2009). It is comprised of a variety of characteristics, such as race, culture, language, religion and country of birth. It has been defined in various ways in previous epidemiological studies (Ahmad, Baker, & Keernohan, 1990; Lloyd, 1992) and is considered to be a dynamic concept that changes over time (Shah, 2009). This is particularly true when considering the effects of migration and acculturation on a presumed stable ethnic identity (Iliffe & Manthorpe, 2004; Milne & Chryssanthopoulou, 2005). Researchers have proposed

numerous characteristics that must be acknowledged when determining group membership (e.g. Ahmad et al, 1990; Isajiw, 1974) and Weiner (2008) stated that any categorisations of race or ethnicity must be multi-faceted in order to be maximally useful. They must include information such as language, acculturation, literacy, place of residence and the ability to meet other needs, such as clothing and shelter. However, the process of defining cultures and subcultures is infinitely complex (Weiner, 2008). The literature has not arrived at a unified decision as to how many characteristics are required to denote membership (Hearn, 2006). Conversely, it is important not to oversimplify the process; Oomen, Bashford and Shah (2009) note that it is important to try to not amalgamate black and minority ethnic groups, as the BME label does not represent a homogenous population.

Bhugra & Bahl (1999) additionally argued that it is important to identify the person who defines ethnicity, as group definitions can arise externally at an institutional level or are alternatively based on a more subjective view at the level of the individual. These authors came to the conclusion that the concept is, in reality, comprised of both objective and subjective criteria.

In light of these reported problems regarding concept and objective criteria, the Office of National Statistics (ONS; formerly the Office of Population Censuses and Surveys) decided to base ethnic group membership on subjective decisions, whereby respondents are free to categorise their own ethnicity (Hearn, 2006). Nevertheless, this situation has also been purported to create its own problems, including reliability between surveys (Cox, Osborne, & Scott, 2001) and the lack of certainty regarding the process by which people come to make decisions about their own group membership (Hearn, 2006). Individuals may vary according to the factors they view as bearing prominently on their decision and a person's ethnic self-concept may change over time (Hearn, 2006).

Bhugra & Bahl (1999) proposed that any definition of ethnicity must offer people possibilities on how to conceptualise their own ethnicity and be amenable to change over time. They advocate Royce's (1982) definition of ethnicity that incorporates both objective and subjective factors:

"an ethnic group is a reference group invoked by people who share a common historical style (which may only be assumed), based on overt features and values, and who, through the process of interaction with others, identify themselves as sharing that style" (p. 18).

It is crucial to obtain a clear definition of ethnicity when conducting research to ensure the focus and validity of the study is intact. Vague definitions thwart the development of a coherent evidence base by undermining comparisons of findings (Iliffe & Manthorpe, 2004; Milne & Chryssanthopoulou, 2005).

### **1.5.2 Ethnic composition of Croydon: 2001 Census Data**

Croydon has been described as a highly diverse borough. There are more than 100 languages spoken and ethnic minority groups make up 37% of the population (Older People's strategy, April 2010).

The ONS calculated population estimates in 2007 according to age, ethnicity and gender (ONS Population Estimates by Ethnic Group 2007 - Experimental Statistics). The report noted that Croydon has a higher proportion of people who describe themselves as White British (58.2%) in comparison to London in total (57.7%); but both percentages are comparatively lower than the average proportion for England and Wales (83.6%). Equally, Croydon is believed to contain a relatively high proportion of individuals (~35%) who described themselves as BME; especially when considering that the national statistics are estimated to lie at 11.8%.

Broken down figures can be reported as group percentages of the total population of Croydon, in order to look at different groups under the BME umbrella. Proportionally, 15% of the population are Black or Black British, 13.9% are categorised as Asian or Asian British and Chinese and other ethnic groups account for 1.9% of the total population. People that describe themselves as mixed race make up 4.3% of this population.

These figures are known to represent the entire population of Croydon. However, this project requires information pertaining to the ethnicity of individuals within Croydon who are most likely to match the age profile of typical clients that are referred to the CMS (Hearn, 2006). Individuals who are most likely to present at the service are most typically, but not exclusively, older adults (age 65+). Research has shown that approximately 77,700 people in Croydon are aged 55 or over, which accounts for 23% of the total population (Older People's strategy, 2010). Nevertheless, the ONS statistics (2010) indicate there is a relatively smaller population of respondents in the older populations that describe themselves as belonging to a BME group. The process and method of obtaining data on the appropriate comparison group are depicted in the Method section (see section 2.3).

## **1.6 Literature on Dementia and Ethnicity**

Prevalence studies suggest that occurrence rates of dementia are not uniform across different countries and ethnic groupings, and this is also true for rates of increase according to projection analyses (Ferri al, 2005). Ferri and colleagues estimated that dementia tends to be more common in developed as opposed to developing regions; with the exception of China and it's developing western-Pacific neighbours (6 million individuals with dementia). In 2001, China itself was calculated to have the largest number of people with dementia (5.0 million), the European Union is home to the second largest population (5.0 million) and the USA came in third with 2.9 million. However, projection estimates predict that progressive

prevalence rates in developing countries will be 3-4 times higher than those in developed countries (Ferri et al, 2005).

Different factors have been proposed to impact upon this variation in prevalence rates for dementia. Methodological problems may be relevant, for example mild dementia is less likely to be detected in developing regions due to difficulties in establishing social impairment (Ferri et al, 2005; Weiner, 2008). Further issues concerning methodology within dementia and ethnicity research will be considered later in this chapter.

Knapp & Prince (2007) estimated that approximately 11,392 people from BME groups in the UK have dementia. They highlighted statistics indicating that BME communities have a younger age profile: 6.1% of the BME dementia population are early onset, which is high in comparison with only 2.2% for the entire UK population. Existing evidence has illustrated similar prevalence rates for dementia when comparing elders from several different BME groups to those from the indigenous population (e.g. Livingston et al, 2001; McCracken et al, 1997). The majority of US studies measuring dementia prevalence across different ethnic groups have found the rate of Alzheimer's disease to be comparable among groups (e.g. Gurland, et al, 1999; Hou, Yaffe, Perez-Stable, & Miller, 2006). However, Hou and colleagues (2006) have shown that the distribution of other subtypes of dementia may vary across groups, e.g. Lewy Body is less frequently diagnosed in non-White groups and Frontotemporal dementia is more common in White and Asian communities than in Black and Latino.

Weiner (2008) suggests it may be reasonably expected that the onset, prevalence, incidence and course of dementia may differ between different racial groups based on group genetic heritages and lifestyles. Low levels of cardiovascular risk, anaemia and hypolipidaemia, in addition to higher mortality rates, in some developing countries have been suggested as explanatory factors (Chandra et al, 2001; Ferri et al, 2005; Hendrie et al, 2001). Possible

risk factors, especially regarding vascular risk, also vary substantially within the developed world and even within countries themselves, such as the UK (Matthews & Brayne, 2005; Parker, Morgan, & Dewey, 1997). Increased rates of stroke, hypertension and diabetes (Raleigh, Kiri & Balarajan, 1996; Stewart, Dundas, Howard, Rudd & Wolfe, 1999) have been reported in older Afro-Caribbean populations. These are known risk factors for vascular dementia and rates of vascular dementia are considered over-represented in these populations, compared to those born in the UK (Stevens et al, 2004). Vascular dementia is also considered to be the dominant subtype in Asian nations (e.g. Breteler, Claus, Duijin, Launer, & Hofman, 1992; White, 1992). Genetic studies have suggested a potential association of certain alleles, e.g. APOE E2 and E4, with late-onset Alzheimer's disease. However, findings have been mixed (Duara et al, 1996; Stewart et al, 2001).

In additions, Oomen et al (2009) highlighted the value of considering where research is conducted. Epidemiological findings from the country of origin of BME elders may not be applicable in the UK due to various processes, such as migration, language, assimilation into the host culture and other environmental changes.

A number of methodological and process variables may impact upon prevalence and incidence rates illustrated within the literature. Milne and Chyrssanthopoulou (2005) noted that "data on dementia prevalence in minority populations is limited and lacks specificity" (pp. 321). Discrepancies between the definitions of dementia employed by studies make it difficult to estimate rates and distinguish between normal ageing and progressive neurodegenerative conditions (Henderson & Jorm, 2000). There is a paucity of screening and diagnostic instruments available for assessing dementia in older people from BME groups (Shah, 2009), and cultural/language barriers impact upon findings derived from the utilisation of non-specialised measures (e.g. Parker & Philip, 2004; Richards et al, 2000, Shah, 2009). Differences in methodology between studies also impede upon the reliability of comparisons between the incidence rates reported (Matthews & Brayne, 2005). Hou and

colleagues make the important point that referral at a later stage could influence the accuracy of diagnosis; subsequently impacting upon the identified frequency of dementia aetiologies (Hou et al, 2006). If certain populations of people tend to be referred at later stages (e.g. cultural and language barriers prevent early referral) when problems are more obvious, then the symptoms that are prominent at these early stages and are useful in distinguishing various neurodegenerative disorders will not be considered. Diagnostic inaccuracies, that are likely to be more common within certain populations, may skew the findings produced within the literature.

### **1.7 Pathways to Care for Ethnic Minorities**

Despite the prevalence rates for dementia appearing to be comparable between different BME groups and the indigenous population, contact between the older BME population and Older Age Psychiatry Services (OAPS) is generally low (Blackemore & Boneham, 1994; Rait & Burns, 1997; Shah, 2009).

As previously noted, Bhui and Bhugra (2002) suggest that "access to, utilisation of and treatments prescribed by mental health services [differs for Black and Asian communities] from those for White people" (p.26). This was highlighted in the report by Hearn (2006), as research relating to care pathways is pertinent when considering why people from minority groups presenting at the CMS may or may not be representative of the population of Croydon.

A simplistic model of the route to referral states that the client may firstly present to their GP with subjective concerns regarding their memory, or perhaps a member of the client's social network may raise these concerns. Thirdly, the GP themselves may notice difficulties and



initiate a referral to the CMS with the client's consent. Any combinations of these routes to referral may operate.

Daker-White, Beattie, Gilliard, & Means (2002) have provided a summary of the reasons they believe ethnic minority groups might be under-represented in dementia services (including client and service related barriers):

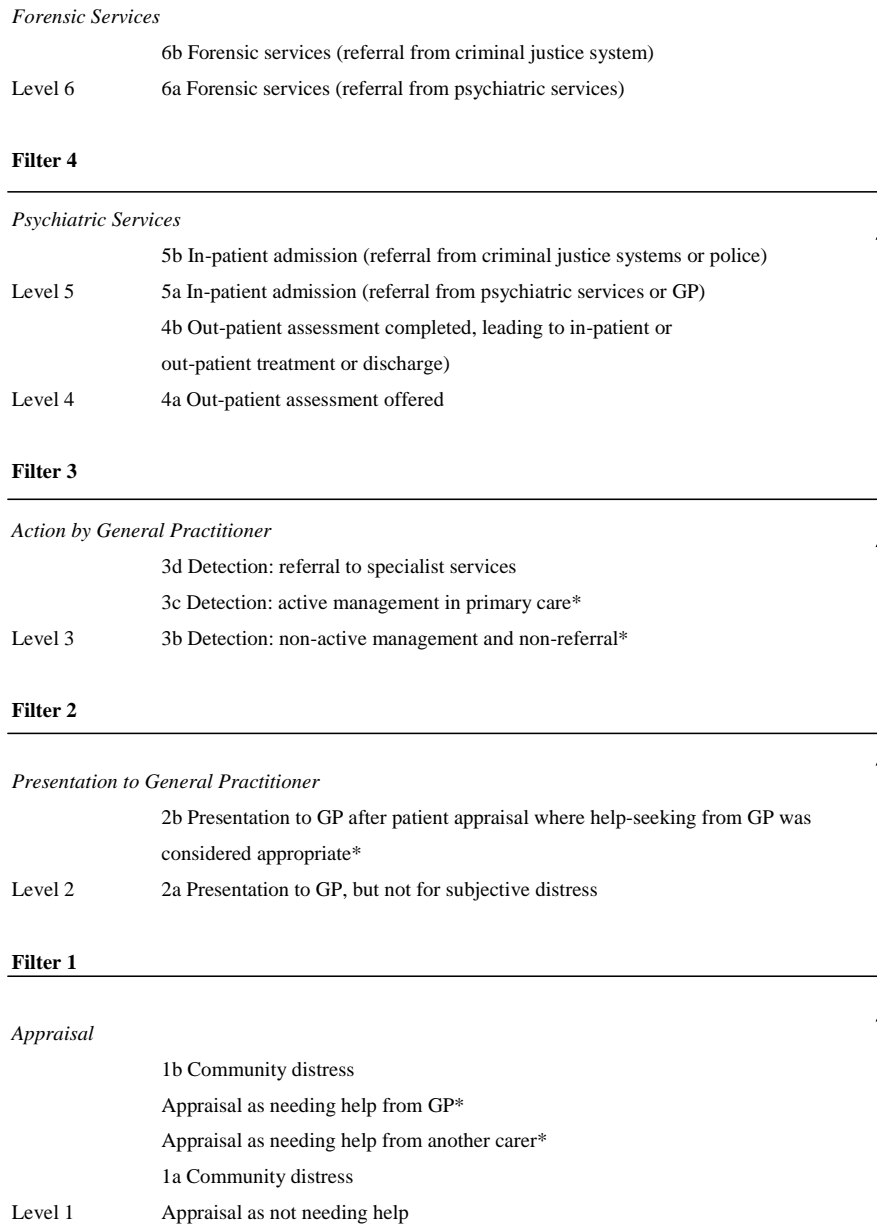
1. Real differences in prevalence rates.
2. Cultural bias in assessment tools.
3. Cultural differences in understanding of, and response to symptoms of memory problems.
4. Language issues.
5. Perceptions about psychiatric problems.
6. Ignorance about the availability of services.
7. Negative experiences with mental health services.

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Bhui and Bhugra (2002) extended the model of service accessibility, created by Goldberg and Huxley (1980), to illustrate the stages at which people from Black and Asian minority groups may experience barriers within this pathway (see Figure 1). The model demonstrates how filtering processes may be at work prior to a client presenting at secondary care services; each filter must be negotiated prior to the client passing to a more highly specialised care setting. To repeat Hearn (2006), the final filter (Filter 5: Forensic Services) is included for completeness but will not be referred to due to its lack of association with the project.

In reference to the first filter, clients may not recognise symptoms as relating to a mental health or medical problem (symptoms may be attributed to an alternative explanation, e.g. supernatural factors) or individuals may recognise the problem but not present at services for fear of stigma (Bhugra, Lippett, & Cole, 1999; Livingston et al, 2004).

**Figure 1: Pathways to Care: expansion of the Goldberg & Huxley (1980) model to address accessibility and service use for Black and Asian ethnic minorities (taken from Bhui & Bhugra, 2002) and previously replicated by Hearn (2006)**



\*Stages at which care pathway could be augmented by involvement of voluntary sector, traditional healers, specialist services or liaison from psychiatrists.

A lack of faith in or knowledge about the efficacy of health services (Bhugra et al, 1999; La Fontaine, Ahuja, Bradbury, Phillips & Oyeboode, 2007; Shah, Lindsay & Nnatu, 2005; Shah, 2009) could also prevent individuals from moving past this initial filter.

The individual's beliefs influence who they choose to talk to about their self-reported problems, whether that be their GP (Figure 1: Level 1b), family or someone important in their community (e.g. a traditional healer). People close to them may become involved and encourage that individual to seek help (Bhugra et al; 1999). The individual and people within their social circle may hold beliefs that prevent contact with medical services. They may question the utility of the health services or demonstrate ignorance about the concept of dementia and care provided within the indigenous country (La Fontaine et al, 2007; Lindsay, Jagger, Hibbert, Peet & Modelina, 1997; Shah, 2009).

Some evidence has demonstrated that older people from BME communities tend to be aware of the services provided by GPs and generally show high GP consultation rates (Figure 1: Level 2) (e.g. Lindsay et al, 1997; Livingston et al, 2002). Nevertheless, when a client actually presents at the GP, cultural biases, language differences and cultural variations in the expression of symptoms can influence the diagnosis/referral the GP makes. The literature suggests that individuals from BME groups are less likely to be referred on to specialist secondary care services (Chandra et al, 2001; Gillam, Jarman, White, & Law, 1989; Bhui, Bhugra, Goldberg, Dunn & Desai, 2001).

This leads us on the fourth filter, which equates to a client presenting at the CMS via a referral from the GP (Figure 1: Level 4b). Several variables, including the aforementioned individual and societal factors within the previous paragraphs, could impact upon the experiences of a client post presentation at the CMS; these variables are most pertinent to consider with respect to this project. Hearn made reference to three particularly significant factors: the cultural biases inherent in the usage of psychometric instruments, the language

the assessment is conducted in and the lack of culturally skilled therapists in specialist services (Forbat, 2003; Hearn, 2006; Littlewood, 1990).

### **1.8 Collecting Data on Ethnicity**

SLAM requires that all services routinely collect data on clients' ethnicity. Analysis of this data allows the service to accurately assess its 'penetration' into the ethnic community. This encourages service adaptation if deficits in access are identified (e.g. the accommodation of different languages and promoting understanding of different cultures). It may also serve to highlight particular groups of service users that may be "heavy users" of the service (e.g. particular groups may be at more risk of developing dementia). If certain groups of people are showing limited use of the service in comparison to others then strategies can be established to promote education around cognitive impairment and facilitate help-seeking behaviours in the identified population (Banerjee et al, 2007; Hearn, 2006).

### **1.9 Aims of the Study**

Over 3264 referrals have been received by the CMS since the service was created in October 2003; all of which have been routinely documented on a Microsoft Access® database. These records contain information gathered at initial assessment, including the subjective self-appraisal of the client's ethnicity. They are routinely updated with information from care reviews when pertinent. Data from referrals received prior to March 2011 were used in this study. Information was only included from clients that were 60 years old or over at the time of referral, this limit was set to match the population data obtained for Croydon (see section 2.3.).

The aims of the study are as follows:

**Aim 1:** To assess the ethnic composition of the referrals received by the CMS from October 2003 until March 2011 and compare this data set with the expected ethnic breakdown of the database (based on existing knowledge of the ethnic composition of the older adult population within Croydon).

**Aim 2:** To consider the distribution of identified diagnostic outcomes across ethnic groups and examine whether any differences in distribution exist.

**Aim 3:** To calculate the mean severity of cognitive impairment at initial assessment for seven superordinate ethnic groups - based on MMSE scores - and consider whether significant differences in severity at initial presentation exist between these groups.

**Aim 4:** To consider the mean delay between receipt of referral to the CMS and the date of initial assessment (in days) across the seven superordinate ethnic groupings.

## **2. METHOD**

### **2.1 General: Accessing CMS database**

The data concerning ethnicity, diagnostic outcome and referral/assessment dates was extracted from Access and transferred onto a Microsoft Excel© document for formatting.

### **2.2 SLAM Ethnicity Codes**

The self-defined ethnicity status of each client entering SLAM is routinely recorded; this recommendation has been implemented throughout the national mental health service (Royal College of Psychiatrists, 2001). There are 5 super-ordinate categories of 'White', 'Black or Black British', 'Asian or Asian British', 'Mixed Background' and 'Other Ethnic Groups'; these are comprised of a range of subcategories that clients are invited to choose from (such as 'White-British' or 'Mixed Background-Asian and Chinese'). The SLAM categories are pre-determined so each client is restricted to making a choice from the set provided. For the purpose of this research, the superordinate label of 'White' was broken down into three separate categories: 'White British', 'Irish' and 'White Other'. This was executed to provide more in-depth information on the extensive number of referrals categorised as 'White'. It makes allowances for the likelihood that some clients identified as 'White Other' will not speak English as their first language. This group may face language barriers along the referral pathway that English speakers may not encounter.

### **2.3 Ethnicity of Older Adults in Croydon**

The Greater London Authority (2010) was contacted in order to obtain the most up to date data on the ethnic composition of the older adult (60+) population of Croydon. Hearn (2006) collapsed several SLAM subcategories in order to 'fit' the local data (provided by Croydon

PCT, 2006), so that the expected ethnicity breakdown of clients presenting at the CMS could be calculated based on this population data. The summary data has been replicated from Hearn (2006) and is presented in Appendix 6.3.

Direct observation of the data indicates that a major change in the ethnic composition of Croydon has not occurred since 2003. The most noteworthy change, although minor, appears to be the slight decrease in the proportion of White British inhabiting the area, alongside simultaneous minor increases in other groups, such as Black Caribbean and Indian. Assuming that the ethnic composition of Croydon is relatively stable, despite potential ongoing changes in proportions due to immigration and other factors, this indicates that the 2010 data should provide a valid representation of the current composition within Croydon today. Therefore, the 2010 data was compared with the corresponding percentages obtained for the sample CMS data using statistical analysis. In line with aim 1, this presents the opportunity to estimate whether the ethnic breakdown of referrals received by CMS from October 2003 to March 2011 is an accurate representation of what would be expected based on the ethnic composition of Croydon's older adult population.

## **2.4 Diagnostic Codes**

When a client is provided with a probable diagnosis by the CMS, the relevant DSM-IV codes are entered onto the Access database. These codes have been detailed in Appendix 6.4. A SLAM code - Z71.1 - is available to indicate cases where no objective evidence has been identified to support the subjective difficulties identified.

## **2.5 MMSE Scores**

The MMSE (Folstein et al, 1975) is a 30-point test that provides a measure of cognitive impairment in adults. It is routinely employed within clinical older adult services to screen for

dementia and cognitive impairment. The instrument estimates severity of impairment at a given point in time and is used to chart cognitive decline over time. A range of cognitive domains are tested, including attention, memory and executive functioning, and a single score is calculated based on the cumulative outcome of these subtests. The broad cut-off for the MMSE is 24/30 (depending on the person's educational history); meaning that scores equal to or below this threshold indicate that the client is experiencing cognitive decline over and above what might be expected based on their age.

## **2.6 Statistical Analysis**

### **2.6.1 Comparison of Ethnicity of Referrals to CMS and Local Population**

One-way classifications were employed to compare the local population percentage data with corresponding percentages from 2057 clients that presented at the CMS for assessment. This provided a means of estimating whether the ethnic breakdown observed within the CMS sample is what would be expected, based on the ethnic composition of local population data (please see section 3.2.).

### **2.6.2 Cross- referencing Ethnicity and Diagnostic Outcomes of CMS Referrals**

Once extracted, the data was broken down according to diagnostic category, based on Appendix 6.4. The observed frequencies for diagnostic outcomes across each superordinate ethnic category were used to calculate the proportion of referrals from each ethnic category who were diagnosed with a particular outcome (please see section 3.3.). This allowed for observational comparison between the groups across diagnosis.



### **2.6.3 Cross- referencing Ethnicity and MMSE Scores of CMS Referrals**

The MMSE scores obtained at initial assessment were manipulated in order to provide mean MMSE scores for each ethnic group for comparison. A one-way ANOVA calculation was performed to examine whether MMSE scores significantly differed between the superordinate ethnic groups (please see section 3.4.).

### **2.6.4 Waiting Time to Initial CMS Assessment according to Ethnicity**

The data entries for the receipt of referral and assessment dates were compared within Microsoft Excel®, in order to calculate the time lag between the two dates. This difference signified the waiting time until assessment, following referral to the CMS. A one-way ANOVA analysis was conducted using this data and the ethnicity codes to allow the association between ethnicity and waiting times to be examined (please see section 3.5.).

## **3. RESULTS**

### **3.1 Preliminary Analysis**

A descriptive analysis of the CMS data indicated that: 129 referrals were awaiting assessment, 862 had not received an assessment due to various reasons (e.g. death, client not consenting, emigration from area, etc) and 215 had received an assessment but were excluded from the data set based on age. This demonstrates that approximately 30% of the referrals received by the CMS had not resulted in an assessment.

### **3.2 Ethnicity of Referrals to CMS**

The expected frequencies for the ethnicity of 2057 referrals were calculated using the percentages from the 2010 data supplied by the Greater London Authority (2010). Table 1 illustrates the observed frequency of referrals to the CMS (column 1) and the percentage value associated with these observations (column 2). Column 3 contains the expected referral frequency based on the percentage values for the ethnic composition of the older adult population of Croydon (Greater London Authority, 2010) (column 4).

One-way classifications were performed to compare the observed and expected frequency data between each superordinate ethnic group. A supra-analysis was not able to be performed on the entire data set concurrently, as cumulative variance would over-inflate the overall statistic produced. The Bonferroni Correction was applied to the p-value in order to reduce the likelihood of incorrectly rejecting the null hypothesis, as a factor of multiple one-way classifications. Twenty-one one-way classifications (df=1) were performed, which led to the p-value being lowered from .05 to .03. Each one-way calculation (e.g. White vs. Other White and Black vs. Asian) produced a statistic that was lower than the critical value

produced by the required p-value ( $p < 0.03$ ), indicating that no significant differences were detected.

**Table 1: Ethnic breakdown if clients referred to CMS (n=2057) expressed as frequency and percentage data, along with corresponding estimates of 'expected' observations**

Superordinate Ethnicity categories (Subcategories)	Observed Data		Expected data	
	Frequency	Percentage	Frequency	Percentage
<b>White</b>				
White or White British: British	1532	74.48	1518	73.8
Total:	1532	74.48	1518	73.8
<b>Irish</b>				
White or White British: Irish	75	3.65	80	3.9
Total:	75	3.65	80	3.9
<b>White Other</b>				
White or White British: Other White	98	4.76	84	4.1
Total:	98	4.76	84	4.1
<b>Black</b>				
Black or Black British: Black Caribbean	112	5.44	115	5.6
Black or Black British: Black African	26	1.26	33	1.6
Black or Black British: Other Black	16	0.77	4	0.2
Total:	154	7.49	152	7.4
<b>Asian</b>				
Asian or Asian British: Indian	111	5.40	111	5.4
Asian or Asian British: Pakistani	20	0.97	29	1.4
Asian or Asian British: Bangladeshi	0	0	4	0.2
Asian or Asian British: Other Asian	33	1.60	29	1.4
Total:	164	7.97	173	8.4
<b>Mixed</b>				
Mixed: White and Black Caribbean	7	0.34	4	0.2
Mixed: White and Black African	1	0.05	0	0
Mixed: White and Asian	5	0.24	12	0.6
Mixed: Other Mixed	4	0.19	8	0.4
Total:	17	0.83	24	1.2
<b>Other Ethnic Groups</b>				
Chinese or Other Ethnic Group: Chinese	2	0.10	12	0.6
Chinese or Other Ethnic Group: Other	15	0.73	8	0.4
Total:	17	0.83	21	1

Notes: 1. Figures may not add up exactly due to rounding

### **3.3 Diagnostic Categories across Ethnic Groups**

#### **3.3.1 Treatment of Data**

The diagnoses were initially broken down based on the broad DSM-IV categories – identifiable as the codes in Appendix 6.4 – and certain groupings of diagnostic outcome were amalgamated into groups where appropriate. The group labelled ‘other dementia-subtypes’ is comprised of Frontotemporal (FTD), Lewy Body (LBD), Multiple Sclerosis (MS), ‘Unspecified Dementia - F03’ (F03), ‘Dementia in other diseases classified elsewhere - F02’ (F02) and other unspecified neurodegenerative diseases (ND). ‘Psychiatric-based’ is the label that has been assigned to diagnoses that were based on ICD-10 non-dementia criteria, such as ‘Depressive Episode - F32’. The 29 referrals that had diagnoses pending could not be included in the analysis and 2 outcomes of ‘Tumour’ will not be considered past this point; due to the very low frequency with which this outcome occurs within the data set and its dissociation from the existing superordinate categories. The remaining 2026 cases were then analysed as aforementioned in section 2.6. The exclusion pathway is outlined in Appendix 6.5.

#### **3.3.2 Diagnostic Categories across Ethnic Groupings**

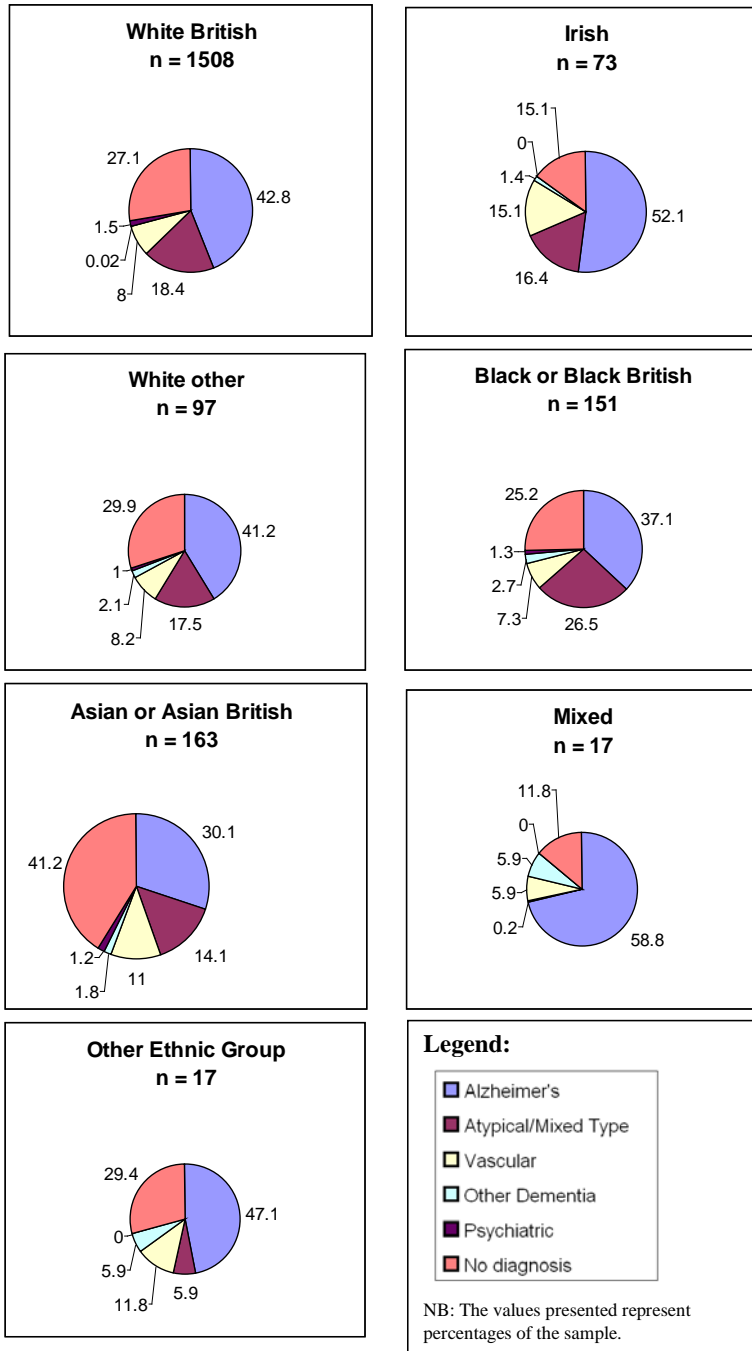
Frequency values for the aforementioned diagnostic outcome categories were calculated across the superordinate ethnic groups for 2026 referrals. The table in Appendix 6.6 reveals the observed frequencies for each of the six diagnostic outcomes across the seven ethnic groups. The charts in Figure 2 illustrate the distribution of diagnoses across ethnic groups.

When considering the prevalence of each presentation within the entire sample (2026 referrals), ‘Alzheimer’s disease’ is the most common diagnosis (41.8%), followed by ‘no diagnosis’ (27.7) and then ‘Atypical or Mixed type Alzheimer’s’ (18.4%). Vascular dementia was diagnosed in 8.5% of the sample, with ‘Other Dementia Subtypes’ (2.2%) and

'Psychiatric-based Diagnoses' accounting for a small proportion of the remaining outcomes (1.3%).

It is difficult to make conclusions regarding the presence of diagnostic outcomes across ethnic groups due to the vast differences in sample sizes; e.g. there are 1508 referrals classed as White British and only 17 referrals within the Other Ethnic Group category (see Appendix 6.6). Groups of larger sizes would provide a more representative sample of the true population, and thus a more accurate representation of the distribution of outcome across these groups. However, it is still interesting to note that 'Alzheimer's disease' is the most common diagnosis irrespective of group membership.

**Figure 2: Charts demonstrating the distribution of 2026 diagnostic outcomes across ethnic groups**



### **3.4 MMSE scores across Ethnic Groups**

As detailed in Appendix 6.5, MMSE scores for 25 referrals were not able to be obtained for a various reasons, including the refusal to comply with this section of the assessment, the client being overly-compromised or other impairments impeding the administration of this measure (e.g. sensory difficulties). The descriptive and inferential statistics for the remaining 2032 referrals are detailed in Appendix 6.7. The differences between the group means were compared using a one-way ANOVA. Homogeneity of variance was assessed by a Levene's test and was found to be significant ( $p > .0001$ ). Welch's test was used to correct for unequal variances. There was a significant difference between the group means,  $F(6,2032)=9.942$ ,  $p < .0001$ . Dunnett's test was employed to explore where the differences lie within the data. The post-hoc tests indicate that a significant difference exists between the mean MMSE scores for the 'White British' (22.0) and 'Black' referrals (19.03) and also between the mean scores for the 'Black' (19.03) and Asian groups (22.15); where  $p > .01$ .

### **3.5 Waiting Times for CMS Assessment across Ethnic Groups**

Waiting times were calculated using data from the 2057 referrals that contained information on ethnicity (see Appendix 6.5). The descriptive statistics for each of the six super-ordinate ethnic groups assimilated during the primary analysis feature in Appendix 6.8. The differences between the group means were compared using a one-way ANOVA, following Hearn's (2006) statistical methodology. Homogeneity of variance was assessed by a Levene's test and was found to be significant ( $p = .005$ ). Welch's test was used to correct for unequal variances. There was no significant difference between the group means,  $F(6,2057)= 1.729$ ,  $p > .05$ .

## **4. DISCUSSION**

### **4.1 Summary**

The results did not reveal any significant differences between the ethnic composition of the referrals assessed by the CMS and the Croydon data set, implying good penetration into local BME communities by the CMS. The waiting times did not differ across groups and the MMSE scores only differed significantly between the 'White British - Black' and 'Black - Asian' groups; in both cases the 'Black' sample obtained lower scores. This may indicate that this sample tends to be referred at more compromised stages of neurodegeneration (regardless of age or educational status) and/or cultural biases are operating during the neuropsychological assessment. Alzheimer's is the most prevalent diagnosis in the sample, regardless of group membership, and it is difficult to make further reliable comparisons between the groups based on differing group sizes.

### **4.2 Ethnicity and Referrals**

Significant differences were not illustrated between the ethnic break down of referrals to the CMS in comparison to the composition of the local older adult community. This implies that the CMS is demonstrating good penetration into local BME communities; indicating that the structure of the CMS and the outreach work conducted with both GPs and local BME communities has been successful (Banerjee et al, 2007). The service is operating in line with MSNAP standards and continues to provide early identification and intervention for people with dementia. Implications for the development of other memory services are apparent; Figure 3 features the components of the service's delivery that underpin the open access to the CMS.



**Figure 3: Aspects of the CMS that contribute to equal access for BME communities:**

- Generic team working removes the need for referrals to be seen by a particular member of the team, improving the rate of assessment and maximising service efficacy.
- Relationship building with temples and churches increases community knowledge about memory ~~problems~~ problems and health care services. It also helps to overcome the stigma attached to mental health services, increasing the acceptability of self-referral.
- Several members of the team express a particular interest in multicultural and interpreter working, maintaining the momentum of continued improvement regarding service delivery for BME communities.
- The open referral system provides a transparent and simplistic method for GPs, to encourage appropriate referral to the service.

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### **4.3 Ethnicity and Diagnoses**

'Alzheimer's disease' is the most prevalent diagnostic outcome across all ethnic groups; this is concordant with current estimates suggesting that Alzheimer's disease is the most common subtype of dementia in the UK (Knapp & Prince, 2007). The remaining outcomes are listed from the most to the least prevalent: 'no diagnosis', 'Atypical or Mixed type Alzheimer's', 'Vascular dementia', 'Other Dementia Subtypes' and then 'Psychiatric-based Diagnoses'. The proportions of these remaining outcomes varied across ethnic groups. The difference in sample size for each of the ethnic categories renders it difficult to make more valid, specific interpretations across groups. Larger, more equal, sample sizes would provide an opportunity for a more detailed analysis of the distribution of outcomes across groups. This would be interesting to consider within further investigations.

#### 4.4 Ethnicity and MMSE

The results indicate that the mean MMSE scores obtained at assessment are significantly lower for the referrals from a 'Black' ethnic background (18.70), in comparison to referrals defined as 'White British' (21.91) or 'Asian' (21.58). The data may imply that individuals from a 'Black' background tend to more compromised before they are referred to the CMS, in comparison to individuals from 'White British' and 'Asian' backgrounds. This may indicate that these ethnic groups experience differing pathways to care. It is useful to consider the model proposed by Bhui & Bhugra (2002) when generating explanations for this discrepancy (see Figure 1).

**Figure 4: Possible reasons why certain ethnic populations are more compromised at initial presentation:**

- Cultural differences in perceptions of dementia, symptoms and variations in help-seeking behaviour and beliefs regarding service efficacy (e.g. Bhugra et al, 1999; Livingston et al, 2004; Shah, 2009).
- GPs may have hold fewer assumptions regarding the baseline characteristics demonstrated by BME clients, meaning that this population may present to primary care multiple times until their symptoms become more obvious and a referral to the CMS is made
- There are inherent disadvantages in employing western-developed screening tools with non-indigenous populations (e.g. Bohnstedt et al, 1994).

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#### 4.5 Ethnicity and Waiting Times

The waiting time data (time from receipt of referral to initial assessment) was collapsed across seven superordinate ethnic categories to explore if differences in waiting time exist between the groups. Analyses did not reveal any statistical difference between the groups, replicating Hearn's (2006) findings. This has good implications regarding the treatment of

referrals by the CMS; indicating that it is unlikely that organisational factors are discriminating against referrals on the basis of ethnicity. It is the policy that every case is treated in the same manner, regardless of demographic factors. New referrals are discussed and allocated on a weekly basis according to chronological order (notwithstanding cases of urgency). However, as noted by Hearn (2006), the collapsing of subcategories, used to form the superordinate categories, could result in a loss of specificity within the analysis, as differences in frequency across subgroups are not considered when using the larger, superordinate categories (e.g. 'Black Caribbean' and 'Black African' referrals may differ in mean waiting time).

#### **4.6 Conceptual Issues and Limitation**

It must be acknowledged that 991 referrals were extracted from the data set as they have not been assessed by the CMS; this may be due to a variety of reasons, such as refusal of assessment, death or emigration from the area. The ethnicities of these clients are unknown, yet a proportion of this group may represent a silent population that are not assessed as a result of cultural or language barriers. For example, the person may have a real memory problem, but they themselves or their family may refuse the assessment due to unknown reasons (Hearn, 2006).

Hearn (2006) did note that a replication of the study may provide the opportunity to increase the specificity of the analysis with the use of a larger data set. Unfortunately, despite larger frequency counts and a slight increase in specificity, the data collated still required collapsing across categories; due to low frequencies within certain groups and to maintain a clear analysis of the information. However, this study has made further considerations regarding the cognitive severity of referrals at initial presentation and does add meaningful conclusions to the previous study completed in 2006.

A further limitation concerns the absence of language as a criterion to discriminate between certain populations of people that present at the CMS. The review published by Daker-White and colleagues (2002) suggests that language ability is the most important factor to consider when exploring the factors that impact upon differential service provision, as opposed to minority group membership per se. This was not considered within this study due to limitations of the data available, but further projects within the service could explore the impact of language on the referral profile of the CMS.

Finally, it is important to note that the data employed was limited to one site (CMS), so the results and clinical implications cannot be generalised to other services and trusts within London without due caution.

#### **4.7 Conclusions and Implications**

The literature repeatedly states the need for improved access to services for BME older adults (e.g. Shah, 2009). The outcomes demonstrated by this audit indicate that the methods used by the CMS to increase penetration into local BME communities have been successful, such as outreach work and liaison with GPs. The open referral system and generic working model employed by the service have also contributed to the positive outcomes demonstrated. It is useful to consider whether these strategies could be implemented across similar secondary care organisations. It is also important to note that good practice is maintained within the CMS itself. Continued outreach work will be imperative in furthering links with the range of communities residing within the region and all GPs should be educated about the variable presentation of dementia in BME clients.

The project highlights a need to improve the method used to record subtypes of ethnicity. The idiosyncratic SLAM codes are currently used throughout the NHS, yet, the superordinate categories suggested do not account for the extensive diversity within these

labelled groupings. For example, 'Other Ethnic groups' combines diverse groups from different parts of Asia, as well as Latin and South America. Alternative protocols for recording ethnicity should be considered to ensure that diversity is acknowledged and accurately recorded. The groupings should suitably reflect the range of ethnic categories reported by the local community.

Additionally, large Polish and Chinese communities are believed to reside in the Croydon area (D. Matthews, personal communication, 23 June 2011), yet this was not reflected in the current samples. Outreach to these particular communities is necessary to ensure each community has equal access to the health services available.

The MMSE is often the instrument of choice used to assess cognitive decline within the NHS. However, this 'one-size-fits-all' approach to psychometric assessment needs to be revised if this tool lacks a degree of validity with non-white populations (Bohnstedt, Fox & Kohatsu, 1994). The norms from Strauss, Sherman & Spreen (2006) are currently used to interpret every dementia assessment conducted by the CMS; however the development of normative data for a full range of ethnic groups is essential for accurate assessment. The development of these norms is an avenue that the CMS may consider exploring as the next step towards a valid, multicultural assessment. These may be useful to develop in conjunction with other specialised memory services.

It may be interesting to conduct further analyses on the data set to examine the association of other factors (e.g. age, gender and language) to service access for BME communities. It would also be informative to obtain qualitative data from clients and primary care services, to link to the current findings. This would provide a richer understanding of how the referral pathway is experienced; helping us to understand and how to overcome the barriers that may exist within this pathway and how to continue successful outreach to BME communities.

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## **6. APPENDIX**

### **6.1 Aims of CMS (Matthews & Banerjee, personal communication; as detailed in Hearn, 2006)**

1. *Integration* – incorporating viewpoints and skills of health and social services, the voluntary sector, users and carers.
2. *Accessibility* – allowing direct access and self-referral, without having to negotiate multiple gatekeepers.
3. *Inclusive* – available to people across all age ranges, ethnicity, levels of severity of illness, etc.
4. *Focused* – people suffering dementia and their carers and relatives.
5. *Seamless* – working internally and with other service providers to ensure that appropriate assessments are completed, care is provided from whatever source and that transitions from one service to another are made for service users and carers as a single coherent whole.
6. *Responsive* – to the needs of people with dementia and their carers, and to other service providers in Croydon.
7. *Practical* – for those with dementia, their carers, and service providers.
8. *Multi-level* – ensuring that care is planned and provided around the needs of the individual and their carers; additionally with a focus for development and provision of training and education.
9. *Enabling* – an empowering and facilitating force allowing for the development and dissemination of best practice.
10. *Evaluative* – a commitment to evaluate the quality of assessment and treatment provided and the provision of evidence-based care.

## 6.2 The ICD-10 Diagnostic Guidelines (WHO, 1992) for dementia

~~3~~.1. A decline in memory to an extent that it interferes with everyday activities, or makes independent living either difficult or impossible.

~~4~~.2. A decline in thinking, planning and organising day to day things, again to the above extent.

~~5~~.3. Initially, preserved awareness of the environment, including orientation in space and time.

A decline in emotional control or motivation, or a change in social behaviour, as shown in one or more of the following: emotional lability, irritability, apathy or coarsening of social behaviour, as in eating, dressing and interacting with others.

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### 6.3 Ethnic breakdown of older adults in Croydon (mid-2003 from Hearn (2006) and mid-2010 from direct correspondence with the Greater London Authority) and corresponding collapsed SLAM categories

Ethnic Category	Older Adult population in Croydon in Thousands (Percentages in parentheses)		Collapsed SLAM categories (data has been amalgamated where applicable)
	2003 (females 60+ & males 65+)	2010 (all 60+)	
<b>All groups</b>	(100%)	51.6 (100)	
<b>White</b>			
White: British	(77%)	38.1 (73.8)	
White: Irish	(4%)	2.0 (3.9)	
White: Other White*	(3.8%)	2.1 (4.1)	English, Scottish, Welsh, Portuguese, Cypriot, Greek, Greek Cypriot, Turkish, Turkish Cypriot, Bosnian, Kosovan, Albanian, Serbian, Croatian, Traveller, Irish Traveller, Gypsy/Romany, All former USSR republics, Other former Yugoslavia, Khurdish, Other white/mixed European, Other white (not specified)
<b>Black</b>			
Black or Black British: Black Caribbean	(5%)	2.9 (5.6)	
Black or Black British: Black African	(1%)	0.8 (1.6)	
Black or Black British: Other Black	(0.2%)	0.1 (0.2)	Black British, Ugandan, Algerian, Angolan, Eritrean, Ethiopian, Ghanaian, Nigerian, Somali, Sudanese, Mixed Black, Other Black unspecified
<b>Asian</b>			
Asian or Asian British: Indian	(4.8%)	2.8 (5.4)	
Asian or Asian British: Pakistani	(1%)	0.7 (1.4)	
Asian or Asian British: Bangladeshi	(0.2%)	0.1 (0.2)	
Asian or Asian British: Other Asian*	(1%)	0.7 (1.4)	Mixed Asian, Caribbean Asian, British Asian, Sinhalese, Sri Lankan, Tamil, East African Asian, Other Asian unspecified
<b>Mixed</b>			
Mixed: White and Black Caribbean	(0.2%)	0.1 (0.2)	
Mixed: White and Black African	(0%)	0 (0)	
Mixed: White and Asian	(0.6%)	0.3 (0.6)	
Mixed: Other mixed*	(0.4%)	0.2 (0.4)	White & Asian, Black & Asian, Black & Chinese, Black & White, Chinese & White, Asian & Chinese
<b>Other Ethnic Groups</b>			
Chinese or Other Ethnic Group: Chinese	(0.4%)	0.3 (0.6)	
Chinese or Other Ethnic	(0.4%)	0.2 (0.4)	Japanese, Vietnamese, Filipino, Malaysian, Middle

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Group: Other			East, Arab, Iranian, Iraqi, Columbian, Ecuadorian, Other Latin American, Any other group, Not stated
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Notes: 1. Figures may not add up exactly due to rounding  
2. Asterisks indicate where SLAM categories corresponding to Croydon PCT data have been collapsed

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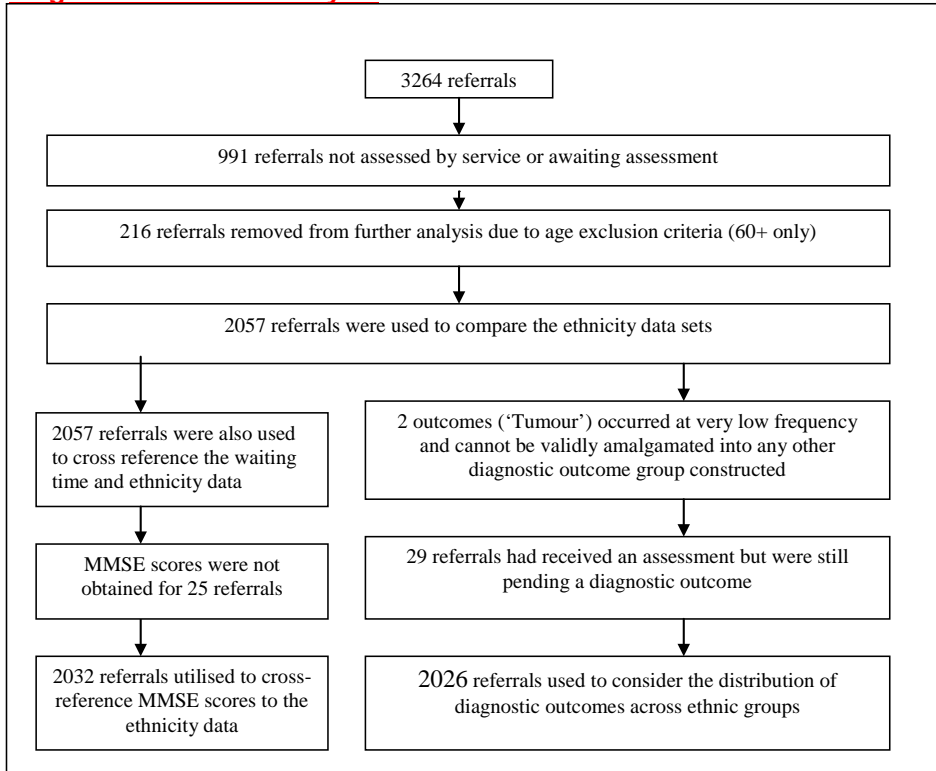
#### 6.4 DSM-IV diagnostic categories for dementia

Codes	Category	Sub-codes	Subcategory
F00	Dementia in Alzheimer's disease	F00.0	Dementia in Alzheimer's disease with early onset
		F00.1	Dementia in Alzheimer's disease with late onset
		F00.2	Dementia in Alzheimer's disease, atypical or mixed type
		F00.9	Dementia in Alzheimer's disease, unspecified
F01	Vascular dementia	F01.1	Vascular dementia of acute onset
		F01.2	Multi-infarct dementia
		F01.3	Mixed cortical and subcortical vascular dementia
		F01.8	Other vascular dementia
		F01.9	Vascular dementia, unspecified
F02	Dementia in other diseases classified elsewhere	F02.0	Dementia in Pick's disease
		F02.1	Dementia in Creutzfeld-Jakob disease
		F02.2	Dementia in Huntingdon's disease
		F02.3	Dementia in Parkinson's disease
		F02.4	Dementia in human immunodeficiency (HIV) disease
		F02.8	Dementia in other specified diseases classified elsewhere
F03	Unspecified dementia	A fifth character may be used to specify dementia in F00-F03, as follows:	
		.x0	Without additional symptoms
		.x1	Other symptoms, predominantly delusional
		.x2	Other symptoms, predominantly hallucinatory
		.x3	Other symptoms, predominantly depressive
		.x4	Other mixed symptoms
Z71.1	CMS 'in house' code for no diagnosis		





## 6.5 Pathway of exclusion for cases considered in the ethnicity by diagnostic outcome analysis



## 6.6 Observed frequency of six diagnostic outcomes across four ethnic groups for 2026 CMS clients (expected frequencies in parentheses)

Frequency of outcome for ethnic group (Percentages in parentheses)							
Diagnostic Outcome	White British (n=1508)	Irish (n=73)	White Other (n=97)	Black or Black British (n=151)	Asian or Asian British (n=163)	Mixed (n=17)	Other Ethnic Group (n=17)
Alzheimer's Disease = excluding atypical or mixed type (n=847)	646 (42.8)	38 (52.1)	40 (41.2)	56 (37.1)	49 (30.1)	10 (58.8)	8 (47.1)
Alzheimer's disease, atypical or mixed type (n=373)	277 (18.4)	12 (16.4)	17 (17.5)	40 (26.5)	23 (14.1)	3 (0.2)	1 (5.9)
Vascular dementia (n=172)	121 (8.0)	11 (15.1)	8 (8.2)	11 (7.3)	18 (11.0)	1 (5.9)	2 (11.8)
Other dementia subtypes (FTD=11, LBD=2, MS=1, F03=14, F02=14, ND=3)	33 (0.02)	1 (1.4)	2 (2.1)	4 (2.7)	3 (1.8)	1 (5.9)	1 (5.9)
Psychiatric based diagnoses (n=27)	22 (1.5)	0 (0)	1 (1.0)	2 (1.3)	2 (1.2)	0 (0)	0 (0)
No diagnosis (n=562)	409 (27.1)	11 (15.1)	29 (29.9)	38 (25.2)	68 (41.2)	2 (11.8)	5 (29.4)
<b>TOTAL</b>	1508 (100)	73 (100)	97 (100)	151 (100)	163 (100)	17 (100)	17 (100)

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2. The highlighted data is not included in the chi squared analysis

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## 6.7 Mean MMSE scores across six ethnic categories for 2032 referrals

<u>Ethnic Category</u>	<u>N</u>	<u>Mean MMSE Scores</u>	<u>SD</u>
<u>White British</u>	<u>1514</u>	<u>22.0</u>	<u>5.56</u>
<u>Irish</u>	<u>73</u>	<u>20.14</u>	<u>5.49</u>
<u>White Other</u>	<u>98</u>	<u>20.89</u>	<u>6.20</u>
<u>Black or Black British</u>	<u>151</u>	<u>19.03</u>	<u>7.04</u>
<u>Asian or Asian British</u>	<u>162</u>	<u>22.15</u>	<u>6.12</u>
<u>Mixed Background</u>	<u>17</u>	<u>16.71</u>	<u>7.30</u>
<u>Other Ethnic Groups</u>	<u>17</u>	<u>19.24</u>	<u>7.53</u>

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## 6.8 Mean waiting times (days) across six ethnic categories for 2057 referrals

<u>Ethnic Category</u>	<u>N</u>	<u>Mean waiting time (days)</u>	<u>SD</u>
<u>White British</u>	<u>1532</u>	<u>47.26</u>	<u>34.15</u>
<u>Irish</u>	<u>75</u>	<u>49.03</u>	<u>35.52</u>
<u>White Other</u>	<u>98</u>	<u>56.53</u>	<u>56.21</u>
<u>Black or Black British</u>	<u>154</u>	<u>53.60</u>	<u>55.47</u>
<u>Asian or Asian British</u>	<u>164</u>	<u>49.91</u>	<u>32.04</u>
<u>Mixed Background</u>	<u>17</u>	<u>43.82</u>	<u>21.04</u>
<u>Other Ethnic Groups</u>	<u>17</u>	<u>40.71</u>	<u>24.02</u>

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## **MAIN RESEARCH PROJECT**

**Latent Cognitive Vulnerability in ‘Looked After’**

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**Adolescents: a Control Comparison Study**

**Primary Supervisor: Dr Matt Woolgar**

**Secondary Supervisor: Dr Patrick Smith**

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## **ABSTRACTINTRODUCTION**

**Background and Aims:** 'Looked After' children (LAC) are particularly vulnerable to later mental health problems due to an accumulation of adverse early life events. This study explores whether latent cognitive vulnerability processes (self-concept and information-processing) are identifiable in LAC who are not reporting manifest symptoms of clinical depression. Response styles and autobiographical memory were also investigated, following findings that rumination and negative categoric memory may be elevated in groups of children at risk of later depression.

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**Method:** A total of 21 LAC participants were recruited from Lewisham Social Services and a local college in Clapham, and 41 control participants were recruited from South East London secondary schools, internal circular emails and classified internet sites. Participants were 11-17 years old inclusively (mean age: LAC=14.7 years, controls=14.1 years) and both males (LAC=4, controls=13) and females were included (LAC=17, controls=28). A mood induction paradigm (Self Referent Encoding Task) was used to examine whether LAC would demonstrate increased cognitive vulnerability in response to induced low mood. Response style and autobiographical memory were also examined using the Children's Response Style Questionnaire (CRSQ: Abela et al, 2002) and the Autobiographical Memory Test (AMT: Williams & Broadbent, 1986).

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**Results:** ~~In line with the~~partial support of the predicted hypotheses, a ~~A-~~marginal non-significant decrease in positive self-concept was observed in the LAC group during the low mood condition. LAC and controls did not significantly differ in terms of manifest depression severity. Bivariate correlations demonstrated that depressive symptomatology was positively related to negative self-concept, rumination and the response style ratio score (rumination divided by distraction/problem-solving) and this latter score was shown to

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uniquely predict depressive symptoms in the LAC group. The information processing and negative categoric memory data did not highlight any significant results.

**Conclusion:** The findings regarding positive self-concept are interesting to consider in terms of markers of cognitive vulnerability in the LAC population, yet they remain weak in light of the absence of a significant effect. These results, and the other null findings, are discussed in terms of the characteristics of the LAC group recruited and the discrepancies between the current sample and other high-risk groups that feature in the literature. This study adds further evidence to the premise that the response style ratio method is uniquely useful in predicting depressive symptomatology in youth groups vulnerable to later depression.

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## 1. INTRODUCTION

This chapter will present a rationale for conducting empirical research with 'Looked After' children, to provide a platform from which to explore the latent cognitive processes that may confer risk of future depression in this vulnerable population. 'Looked After' children are found to have higher rates of depression than peers from the general population and are often exposed to an array of adverse life events in early childhood. This leads to the prediction that 'Looked After' youths are likely to possess higher rates of latent cognitive vulnerability due to the accumulation of risk factors that they have been exposed to, without necessarily reporting clinically significant manifest symptoms of depression. Existing literature will be reviewed that has explored the cognitive structures and processes involved in building a risk for depression; including self-schema, information processing biases, response style and overgeneral memory, and ~~there will be a focus on adolescent research with high-risk youths due to the target population being studied.~~ This chapter will demonstrate/identify that research on cognitive vulnerability processes with youths in care is needed and provide a rationale for using a mood induction paradigm to highlight latent processes that may not be detectable during neutral mood states.

## **1.1 Mental Health in ‘Looked After’ Children**

### **1.1.1 Definition of ‘Looked After’ Children**

The term ‘Looked After’ describes a population of children that are in care of local authority social services departments, including foster placements, ~~and~~ placements in residential homes and those who have remained with their birth parents/kin but are subject to a care order. The term was introduced by the Children Act 1989, in England and Wales, and the Children (Scotland) Act 1995 and covers ~~both~~ children who are compulsorily in care due to a care order and those who are voluntarily accommodated. Although many ‘Looked ~~After~~’ children (LAC) spend only brief periods of time in the care system, a considerable number are required to stay in care for a significant portion of their childhood. Little empirical research has focused on the presentations and needs of these young people, despite the rise in this population over recent years (Richardson & Lelliott, 2003).

### **1.1.2 Definition and Prevalence of Early Adversity and Maltreatment**

The terms early adversity and childhood maltreatment encompass a broad range of variables which may impact upon the child's psychological and biological development. Early adversity can encompass a range of traumatic life events, such as interpersonal traumas (rape) and loss (parental divorce) (Kessler, Davis & Kendler, 1997; Masten et al, 1999), in combination with more chronic, contextual factors, such as such as perinatal hazards, parental psychopathology, parental substance misuse, and poverty (e.g. Garnezy & Rutter, 1985; Masten, Best & Garnezy, 1990; Sameroff & Chandler, 1975). ‘Childhood maltreatment’ tends to be considered a collective description for three types of abuse (physical, sexual and emotional) and neglect (Cawsom, Wattam, Brooker, & Kelly, 2000), and each type is associated with its own specific antecedents and consequences. However, researches have highlighted that there is a lack of an agreed definition for the term

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'maltreatment' (e.g. Manly, 2005). The Children Act 1989 (section 31[9] as amended by the Adoption and Children Act, 2002) uses the word 'harm', as opposed to maltreatment, and defines this as "ill-treatment (including sexual abuse and non-physical forms of ill-treatment) or the impairment of health (physical or mental) or development (physical, intellectual, emotional, social or behavioural)".

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Variance in subjective and objective definitions has given rise to inconsistent prevalence rates across studies (Carlin et al, 1994). May-Chahal and Cawson (2005) attempted to provide reliable measures of prevalence for all forms of child maltreatment across the UK. In total, 2,869 young adults were interviewed about their experience of abuse as a child and maltreatment (intra- and extra-familial) was reported in 16% of cases. The authors further specified the results by discriminating on the basis of severity and the form of abuse (physical, emotional, absence of care, absence of supervision, sexual) and also considered the respondents attitudes towards maltreatment. They emphasised that childhood maltreatment remains an 'extensive social problem' (pp. 969) and noted that maltreatment levels are likely to be particularly high within the 'looked after' population.

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### **1.1.3 Mental Health Outcomes and Prevalence Rates**

#### **1.1.3.1 Risk Factors for Psychological Vulnerability**

The Department for Children, Schools and Families (2009) established that 61% of the 60,900 children labelled as 'looked after' in England had been ordered into public care as a result of parental neglect or abuse. Prevalence studies have reported that looked after children commonly present at social services with a history of maltreatment and neglect (Department for Children, Schools and Families, 2009; Oswald, Heil, & Goldbeck, 2010), experience of parental mental ill health and substance abuse (Chernoff, Combs-Orme,

Risley-Curtiss, & Heisler, 1994) and disadvantaged social backgrounds (Bebbington & Miles, 1989). Oswald and colleagues (2010) reported that LAC often experience multiple forms of maltreatment, including: neglect (18-78%), physical abuse (6-48%), sexual abuse (4-35%) and emotional abuse (8-77%) and 14-30% are likely to have had experience of parental substance abuse. The experience of the care system itself and the young person's response to negative life events (e.g. substance abuse) may also act as risk factors for psychological vulnerability (Department for Education and Skills, 2006; Richardson & Lelliot, 2003; Utting, ~~Baines, Stuart, Rowlands & Vialva-et-al~~, 1997). The accumulation of both biological and psychosocial risk factors places LAC at a high risk ~~offer~~ mental health disorders, ~~problems~~ which commonly persist after they have left care. Richardson and Lelliot (2003) emphasise that interrelated causes often underlie the problems observed within the LAC population, which consequently makes it very hard to disentangle the effects of multiple risk factors (family, social and environmental) on later psychopathology.

#### 1.1.3.2 Mental Health Outcomes

##### Mental Health Outcomes

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Research indicates that LAC are more likely to experience poor mental health in comparison to same-aged peers (McAuley & Davis, 2009). Very high rates of mental disorder, maltreatment and developmental delay were observed in LAC samples from Oswald and colleague's (2010) extensive review of the literature. A history of psychiatric problems and cognitive difficulties were more common in adolescents who had experienced neglect, physical abuse or placement failure. Outcomes for care leavers are also very concerning, including long term mental ill health, social disadvantage, and poor academic attainment and criminal behaviour (Biehal, Clayden, Stein, & Wade, 1995; Broad, 1998; ~~Department of Health~~DoH, 1999; Social Services Inspectorate, 1997; Saunders & Broad, 1997).

Unfortunately, a lack of longitudinal data means that we have no approximate figures on the proportion of care leavers that go on to access adult mental health services or develop major mental health disorders in later life (Koprowska & Stein, 2000).

McCann, James, Wilson, and Dunn (1996) reported that 67% of 13 to 17 year olds being looked after by Oxfordshire local authority were suffering from a diagnosable psychiatric disorder; compared to 15% from a non-LAC group matched by age and gender. Similar findings were revealed by a more extensive national survey of the mental health of 1039 young people in the care system (Meltzer, Gatward, Corbin, Goodman, & Ford, 2003a). Forty-five percent of 5-17 year olds were assessed as presenting with a psychiatric disorder according to the ICD-10. This statistic (45%) is 4-5 times higher than prevalence rates (~10%) observed within the general population (e.g. Green ~~et al~~, McGinnity, Meltzer, Ford & Goodman, 2005; Meltzer, Gatward, Goodman, & Ford, 2000, 2003b). This is a robust survey that used both semi-structured interviews and questionnaires to assess mental health and recruited a vast sample size, consequently providing an accurate portrayal of the mental health needs of the LAC population. Conduct disorder and affective disorders (including depression) have been cited as the most common psychiatric disorders by a collection of prevalence studies (Dimigen, et al., 1999; McCann, et al., 1996; Meltzer, et al., 2003a). Meltzer et al (2003a) reported that 5.1% of 11-15 year olds were classified as clinically depressed, and this statistic increased to 8.3% in 16-18 year olds. Meltzer and colleagues, Gatward, Goodman & Ford (2003b) simultaneously conducted a survey of all 5-15 year olds living in private households in Great Britain (10,438 participants) and reported a prevalence rate of 0.92% for depressive disorders. In McCann's (1996) study, 23% of their LAC group was diagnosed with MDD compared with 4% of controls. These figures illustrate that LAC are at a higher risk of developing depression and research is imperative to explore the latent risk factors which may predict the development of this disorder.

A significant proportion of LAC experience psychiatric comorbidity and other complex difficulties (Dimigen et al, 1999; McCann et al, 1996). Carers tended to agree with the diagnoses given and carer-report highlighted that 43% of a diagnosis-free subsample were demonstrating problematic emotional, behavioural or hyperactive behaviours (Meltzer et al, 2003a). This indicates that mental health problems are more widespread than just those categorised as current presentations of clinical diagnoses and highlights a latent risk for the development of clinically significant psychiatric problems in this population (McAuley & Davis, 2009).

#### **1.1.4 Current Problem of Unmet Need**

'Every Child Matters' (Department for Education and Skills, 2003) is a green paper document stating that every child should have access to support that helps them to stay safe, healthy, enjoy and achieve, reach economic well-being and make a positive contribution to society, regardless of their background or circumstances. This document highlights the importance of narrowing the gap between life outcomes for LAC and the wider population. Placement instability can lead to frequent transitions between services and staff shortages further limits the likelihood of young people receiving psychological support (Mental Health Foundation, 2002). This instability leads to young people experiencing variability in the care experiences they encounter and makes for a chaotic journey during their formative years; changing exposure to varying stressors initiates a fluctuating course of low mood and mental ill health.

A serious problem of unmet need is evident from the aforementioned studies. Many of the young people suffering from mental health problems that were entering or were already within the care system had not been referred for psychological intervention (Dimigen, et al, 1999; McCann, et al, 1996). It is essential that ~~individuals~~ ~~these~~ at risk of mental health problems are detected early in order to provide appropriate support for the young person

and reduce the likelihood of placement disintegration (McAuley & Davis, 2009; McCann, et al, 1996; Mental Health Foundation, 2002; Vostanis, 2003a).

LAC are considered a challenging group to study due to placement instability, mistrust of initiatives by the young people themselves, ~~m~~Multi-disciplinary DT-working and laborious consent procedures (Richardson & Lelliott, 2003). Considering that this population is particularly vulnerable and susceptible to developing mental health problems, the literature on the mental health needs of LAC is limited. There is a call for research on more specific and complex mental health problems (Mental Health Foundation, 2002; Oswald et al, 2010; Richardson & Lelliott, 2003), the value of differing therapeutic approaches and interventions with this group and what protects some children from developing mental health problems (Mental Health Foundation, 2002). This study aims to investigate latent cognitive risk mechanisms that may underlie the broad psychological difficulties that are characteristic of the LAC population.

## **1.2 Depression**

### **1.2.1 Definition**

Research in the late 1970s started to conform to the increasing ~~recognition~~-realisation that children and adolescents exhibit similar, characteristic features of depression that are observed within the adult population. Adult diagnostic criteria for depressive disorders focuses on depressed mood and/or anhedonia (diminished interest and/or pleasure in most activities), amongst other symptoms, that cause disruption to daily functioning and are pervasive and persistent in nature (APA, 1994; WHO, 1994). Irritability is a key feature of adolescent depression, and low mood is not a necessary criterion for the diagnosis of depression in adolescents (APA, 1994). Depressive symptoms occur on a continuum, and individuals who are categorised as sub-clinical may be at risk of a deterioration in presentation if subtle symptoms and underlying risks are not recognised and acted upon.

Depression is recurrent and persistent in nature (e.g. Fombonne ~~et al~~, [Wostear, Cooper, Harrington, & Rutter, 2001](#); Lewinsohn, Rohde, Klein, & Seeley, 1999; Kessler, Avenevoli & Merikangas, 2001; Weissman et al., 1999) and studies have demonstrated that the first onset of depression tends to occur between early-to-late adolescence and young adulthood (Burke, Burke, Regier, & Rae, 1990; Kessler ~~et al~~, [McGonagle, Schwartz, Blazer & Nelson, 1993, 2005](#); Kovacs ~~et al~~, [Feinberg, Crouse-Novak, Paulauskas & Finklestein, 1984](#); Lewinsohn, Clarke, Seeley, & Rohde, 1994; Lewinsohn, Duncan, Stanton & Hautzinger, 1986).

### **1.2.2 Prevalence in Young People**

International and national prevalence studies illustrate that depression is common among young people. Surveys report an 8.2% 12-month point prevalence rate and an 11.7-15.3% lifetime prevalence rate of Major Depressive Disorder (MDD) in adolescents up to the age of

18 (Kessler & Walters, 1998; Kessler et al, 2011; Merikangas et al, 2010). Studies have highlighted that a significant majority of MDD cases experience psychiatric comorbidity, functional role impairment and recurrent episodes (Angold & Costello, 1993; Birmaher et al, 1996; Hammen & Compas, 1994; ~~Herman, Ostrander, Walkup, Silva, & March, 2007;~~ Ruchkin ~~et al~~, Sukhodolsky, Vermeiren, Koposov & Schwab-Stone, 2006). Kessler and Walters (1998) reported an attempted suicide rate of 21.9% in their sample of young people. These findings have been replicated across both clinical and community studies (Angold & Costello, 1993) and cross-national/ethnicity samples (Ruchkin et al, 2006).

### **1.2.3 Impact and Implications**

Depressive disorders often persist into adulthood and numerous studies have reported that at least 50% of young people with MDD are likely to experience adult recurrences of depression (e.g. Fombonne et al, 2001; Lewinsohn et al, 1999; Weissman et al., 1999). Depression is associated with a multitude of adverse psychiatric and psychosocial consequences (e.g. Harrington, Fudge, Rutter, Pickles & Hill ~~et al~~, 1990; Weissman et al, 1999. These include issues such as substance abuse, academic problems, high-risk sexual behaviour, physical health problems, impaired functioning, social relationship difficulties and an increased risk of completed suicide in comparison to the general population (Birmaher et al., 1996; Brent et al., 1988; Le, Muñoz, Ippen & Stoddard, 2003; Rohde, Lewinsohn, & Seeley, 1994; Stolberg, Clark & Bongar, 2002; Weissman et al, 1999).

Greenberg, Domitrovich, & Bumbarger, (2001)~~Greenberg et al (2001)~~ emphasised that preventive interventions are most effective when directed at specific risk and protective factors, as opposed to categorical problems. A number of risk factors confer vulnerability to the development of depression, and maladaptive cognitive processes are conceived as key factors in the development of both adult and adolescent psychopathology. The LAC population is comprised of numerous individuals who have been exposed to early negative

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life events and may thus possess cognitive vulnerabilities that lead to depression. sTherefore, it is important to identify and reduce these maladaptive cognitive processes early on before they become established in adulthood (Garnefski, Legerstee, Kraaij, Van Der Kommer & Teerds, -et al-2002). This study aims to identify whether underlying adverse cognitive processes can be detected prior to the onset of depression in a group of high-risk individuals.

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## 1.3 Schema and Cognitive Vulnerability

### 1.3.1 Introduction Models of Child Development

It is well-known that the majority of the general population will at some point experience stressors in their life, however, only a relative minority will go on to develop clinically significant depression (Brown & Harris, 1978). Teasdale (1988) asks what underlies this vulnerability to depression?

Developmental psychopathology is the study of complex risk and resilience processes that influence an individual's journey over the life span, and it recognises that psychological outcomes are determined by multiple, interrelated factors (Sroufe & Rutter, 1984). Various domains that impact upon this developmental pathway are present in the research, such as biological, genetic and social factors and attachment representations. Research has shown that certain types of maltreatment, e.g. parental indifference, physical and sexual abuse, are associated with later psychopathology, e.g. depression (Brown & Harris, 1993; Brown, Cohen, Johnson & Smailes, 1999; Young, Abelson, Curtis & Nesse, 1997) and this collection of developmental processes have been drawn upon in attempts to explain this link.

Researchers have shown atypical profiles of genetics, brain structure and brain function in those subjected to maltreatment in childhood (e.g. Kim-Cohen et al, 2006; McCrory, De Brito & Viding, 2010; Pollak, 2008), and neuroendocrine studies report an association between early adversity and an atypical hypothalamic-pituitary-adrenal (HPA) axis stress response, which may predispose later mental health problems (McCrory, De Brito & Viding, 2010; 2012). Attachment representations (Bowlby, 1969) are another key construct that has been considered in combination with other risk factors to explain the impact of maltreatment on development and psychopathology. For example, Fonagy and Bateman (2008) proposed

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that maltreatment disrupts the early attachment relationship and this, in combination with later traumatic experiences, interacts with neurobiological development to account for symptoms characteristic of Borderline Personality Disorder. Alternatively, Hankin (2005) showed that an insecure attachment style, negative cognitive style and negative events partially accounted for the observed relationship between childhood maltreatment and later depressive symptoms. This study aims to focus down on specific cognitive processes that confer vulnerability to future depression.

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### **1.3.2 Introduction to Cognitive Vulnerability**

It is well-known that the majority of the general population will at some point experience stressors in their life, however, only a relative minority will go on to develop clinically significant depression (Brown & Harris, 1978). Teasdale (1988) asked what underlies this vulnerability to depression?

Researchers have called attention to the importance of studying cognitive vulnerability models within a developmental framework and have identified adolescence as a crucial stage in understanding depression (Garber, 2000; Hammen, 1992; Hankin et al, 1998). Hankin and colleagues (1998) noted that a peak in new clinical cases, higher depression rates and a significant increase in sex differences were observed during mid-to-late adolescence. A large body of literature exists on cognitive vulnerability in adult populations but substantially fewer studies have examined this concept in younger samples (see Abela & Hankin, 2008; Hankin & Abela, 2005). Further studies that broach this research area are important, because adult findings cannot be automatically transferred to youth populations (Digdon & Gottlib, 1985).

### **1.3.3 Beck's Theory of Cognitive Vulnerability**

Beck and colleagues were leading figures in outlining the relationship between schema, cognitive processes and depressed mood (~~Beck, 1963;~~ Beck, 1963, 1967; Beck, Rush, Shaw, & Emery, 1979). A schema is defined as an organised representation of an individual's prior experiences that selectively facilitates the processing of personally relevant information. Theorists have postulated that early childhood is the critical period in which schema are formed (e.g. Beck, 1963, ~~1972~~) and previous research has evidenced the presence of both positive and negative 'self-schemata' (schemas that contain information regarding the self) in children and adolescents (e.g. Hamman & Zupan, 1984; Kelvin, Goodyer, Teasdale, & Brechin, 1999; Prieto, Cole, & Tageson, 1992).

Schemas that are developed in response to negative childhood events may become 'dysfunctional' in nature and cause perception, thought, attention and memory to be biased in a way that is consistent with that schema. Beck (1967) proposed that vulnerable individuals automatically employ a negative, self-referent information processing bias in response to negative events, which gives rise to depressive symptomatology. Numerous cross-sectional and prospective studies have accumulated which have implicated negative cognitive schemas as key constructs within depression (see Abela & Hankin, 2008; ~~Cole, Martin & Powers, 1997;~~ Dozois & Beck, 2008; ~~Hammen, 1988;~~ Ingram, Miranda & Segal, 1998).

#### **1.3.3.1 Youth Studies**

Youth research has provided findings that are consistent with Beck's (1967) model. Bruce and colleagues (2006) demonstrated that negative life events and negative parenting correlated with higher levels of depressive automatic thoughts, and these associations were

stronger for older children (i.e. early adolescents). Lumley & Harkness (2007) predicted that early maladaptive schemas (EMS: Young 1994, Young, Klosko & Weishar, 2003) would act as mediators between particular forms of early adversity (emotional vs. physical vs. sexual abuse) and differential psychiatric symptom profiles (depression vs. anxiety) in their cross-sectional study. They found that schemas themed around worthlessness and loss mediated a specific relationship between early adversity and anhedonic symptoms, whereas schemas including themes of danger were linked to anxious symptomatology. These results support Beck's content specificity hypothesis: schema content is directly linked to psychiatric symptomatology. Lumley & Harkness (2009) also demonstrated that higher levels of parental maltreatment and physical abuse were associated with a depressotypic schema organisation. This construct again mediated between maltreatment and depression. These studies highlight that schema and related processes are meaningful concepts to study within youth populations at risk of depression.

#### **1.3.4 Differential Activation Hypothesis**

Despite this evidence, Beck's model has received only partial support from the adult and youth literature (e.g. Abela & D'Alessandro, 2002; Abela & Hankin, 2008; Abela & Skitch, 2007; Abela & Sullivan, 2003; Giles & Rush, 1983; Teasdale, 1988). Beck proposed that asymptomatic individuals vulnerable to depression would constantly show evidence of maladaptive schemata; however, studies have repeatedly demonstrated the absence of depressive schema in remitted-depressed groups (see Coyne, 1992; Teasdale, 1988). Teasdale (1988) consequently proposed the 'differential activation hypothesis' (Teasdale, 1983; Teasdale & Dent, 1987), to overcome some of the limitations of Beck's model and extended the existing framework in order to explain both the onset to and [the](#) maintenance of depression. Teasdale (1988) suggested that the type of events that provoke mild and transient low mood in all people may lead to the onset of clinical depression if the thinking patterns activated by those events become more severe following the initial lowering of

mood. Particular patterns of thinking are then reactivated by depressed mood and determine the persistency and chronicity of future episodes. A reciprocal relationship between mood and cognitive processing is proposed, ~~becauseas~~ depressed mood ~~is theorised to~~ increases the accessibility of negative constructs and vice versa (Teasdale, 1988). Teasdale (1988) also emphasised that individuals are more susceptible to developing chronic, clinical depression if the negative constructs that become accessible in the depressed state relate to a global view of the self, such as 'I am worthless' or 'I am pathetic'.

Segal and Ingram (1994) explicitly state that "the key to assessing cognitive vulnerability is...to study the activation of negative self-referent cognitive structures" (pp. 665). The experimental provocation of a mildly sad mood state in participants at risk of developing depressive symptoms can be used to assess the latent negative self-schemas that lie beneath the surface in asymptomatic individuals. Persons & Miranda (1992) posited that the ability to report stable, latent negative schema is therefore dependent on the individual's mood state; they refer to this as the "mood state hypothesis".

Cognitive vulnerability tends to be conceptualised in terms of a continuum (e.g. Gibb, Alloy, Abramson, Beevers, & Miller, 2004; Hankin, Fraley, Lahey, Waldman, 2005), whereby if an individual possesses a high level of cognitive vulnerability, then their threshold for developing depressive symptoms in response to stressful events is lower. This also works conversely with low levels of vulnerability and highly stressful events. Therefore, cognitive vulnerability and subclinical depressive mood reactions are important to study in high risk populations, as these may predispose the development of more serious, depressive symptomatology.

### **1.3.5 Evidence for Cognitive Vulnerability Processes**

#### **1.3.5.1 Adult Studies**

A wealth of studies have used a variety of methods to test the differential activation hypothesis and negative self-schema. The endorsement and incidental recall of negative and positive self-referential adjectives have frequently been utilised as dependent variables within this area of research (Scher, ~~Ingram & Segal et al~~, 2005).

Research has repeatedly demonstrated that endorsement patterns for self-referential adjectives can be considered important markers of negative cognitive structures related to depression (Dent & Teasdale, 1988; Scher et al, 2005). ~~For example~~Additionally, non-depressed adults appear to show a bias in recalling self-referential positive adjectives, whereas depressed adults show enhanced recall for negative self-referential adjectives (e.g. Derry & Kuiper, 1981; Dent & Teasdale, 1988; Kuiper & Derry, 1982). Incidental recall tasks are assumed to provide an index of information-processing, inferring that the recall of negative descriptors reflects the activation of negative self-schemas; this bias in recall is not evidenced in non-depressed controls and is only revealed in remitted-depressed patients using temporary induced low mood (e.g. ~~Gilboa & Gotlib, 1997; T~~Teasdale & Dent, 1987; Williams, 1998; unpublished doctoral thesis, cited in Segal & Ingram, 1994). Studies support the hypothesis that maladaptive cognitive processes are activated during mildly depressed states in those at risk of depression (Teasdale, 1988). Furthermore, prospective studies have illustrated that depressogenic cognitive markers, such as self-descriptor endorsement and incidental recall, are valid predictors of mental health problems, as they interact with negative life events to predict future depressive symptomatology and relapse (e.g. Alloy et al, 2006; Hankin, Abramson, Miller, & Haefel, 2004; Segal, Gemar & Williams, 1999; Segal et al, 2006). A weight of available evidence supports the 'differential activation hypothesis' (Teasdale, 1988) and highlights significant effects of mood induction within groups of vulnerable individuals (Scher et al, 2005).

Segal and Ingram (1994) emphasised that mood induction procedures are not revealing cognitive structures that are solely mood dependent but also confer a vulnerability to future depression. They summarised that existing research demonstrates that control subjects do not evidence the same changes in cognitive measures as observed in clinical samples, when both groups are subject to negative mood induction. Therefore, the observation of dysfunctional cognitive processing following construct activation procedures in formerly depressed patients is “the first step toward the validation of a marker of vulnerability” (Segal & Ingram, 1994; pp. 690). This method allows the identification of negative schema in both currently asymptomatic participants with a history of depressed mood and those at risk of developing depression in the future.

#### **1.3.5.2 Youth Studies**

Abela & Hankin (2008) provide an extensive review of the youth literature and note that the findings with adolescents so far parallels adult research with respect to both a mix of supportive and contradictory evidence for the cognitive vulnerability model of depression.

Research with depressed children in particular has not always paralleled that of adults (e.g. Hammen & Zupan, 1984; Prieto, et al., 1992). Various studies (e.g. Hammen & Zupan, 1984; Prieto et al, 1992) have showed that depressed children do not recall significantly more negative self-descriptors than non-depressed controls; however non-depressed controls do tend to recall more positive words than depressed groups. These studies imply that a drop in positive self-concept is the key difference between depressed and control samples. Gençöz, Voelz, Gençöz, Pettit & Joiner and colleagues (2001) found evidence for reduced positive and elevated negative self-schemas in young people reporting elevated depressive symptoms; however, only the change in positive self-schemas remained

significant when both positive and negative schemas were used to predict current depressive symptoms.

Research has subsequently shown that markers of vulnerability also exist in individuals who have not previously experienced clinical depression but are at high risk of developing this disorder in the future due to an accumulation of risk factors. Research using the mood induction paradigm has been successfully applied to both child and adolescent populations to test such concepts. Taylor & Ingram (1999) used an autobiographical mood induction to examine how mood influenced the classification of adjectives as self-descriptive. The sample included 86, non-depressed 8-12 year olds, who were defined as either at low- or high-risk of future depression depending on maternal depression status. Positive adjectives were less likely to be endorsed as self-descriptive by high risk children in the negative mood condition compared to high risk children in the neutral mood condition or low-risk children ~~in either, regardless of~~ condition. In addition to this, high risk children in the negative mood condition recalled a higher quantity of negative self-descriptors than high risk children in a neutral mood during an incidental recall task. This indicates that negative cognitive processes are also susceptible to contexts that amplify the accessibility of latent cognitive constructs; this was observed in addition to the change in positive processes reported in the previous studies (Gençöz et al, 2001; Hammen & Zupan, 1984; Prieto, et al, 1992). Murray, Woolgar, Cooper, & Hipwell (2001) obtained conceptually similar results in a group of 94 5-year old children. Children categorised as high-risk (maternal depression) were more likely to show negative expressions when losing a card game; whereas both groups demonstrated positive expressions when winning. Woolgar and Tranah (2009, 2010) supported these findings using a different sample of vulnerable ~~adolescents~~ youths. They used a combination of both a musical and autobiographical mood induction procedure with a sample of 38 adolescents residing in secure accommodation. The sample recalled more negative and less positive self-schemas following ~~the~~ negative mood induction in comparison to the neutral mood condition. Jaenicke et al (1987) ~~additionally showed~~ have also demonstrated that high risk



children (maternal major affective disorder) reported less positive self-schemas and a more negative self concept and attributional style than low risk children. However, the authors did not explicitly differentiate between those in the sample that were currently depressed, had a history of psychiatric disorder or had no known history of psychiatric problems; meaning that this sample may not be classified as 'at-risk'. Timbremont & Braet (2004) administered mood induction procedures to 44 child inpatients prior to a self-referent encoding task. Participants were classified as either currently depressed, in remission from depression or never depressed. The groups that were currently depressed or in remission rated more negative words as self-descriptive in comparison to the never depressed group. The ~~currently~~ depressed group demonstrated a negative recall bias compared to the never depressed group on the incidental recall task, and the never depressed group also demonstrated positive information processing in comparison to the other two groups on this same task.

The latter findings using the mood induction procedures are more consistent with the adult literature and suggest that studies using LAC as the high-risk group may provide similar results as the ones cited above, due to the early life adversity that often characterises their childhood. This is a population known to demonstrate higher rates of clinical depression and emotional problems than same-aged peers (McCann et al, 1996; Meltzer et al, 2003a). LAC are frequently exposed to negative life events in early childhood, subsequently accruing a sufficient number of negative experiences to result in the development of well-elaborated negative self-schemas more typically present in adulthood (Woolgar & Tranah, 200910). They would thus be expected to show both a drop in positive and an elevation in negative self-concept following a negative mood induction.

### **1.3.6 Relation to Early Adversity**

Beck's model (1967) specifically emphasises that early childhood experiences are key in the development of schemata and early abuse and negative parenting are crucial processes that may lead to the development of complex, rigid negative beliefs that are enduring and resistant to change (Beck, 1976, Beck & Young, 1985). Evidence has linked negative life events, inconsistent/critical parenting and a lack of warmth and acceptance to negative self-concept and depression in young people (e.g. Bruce, et al., 2006; Garber & Flynn, 2001; Jaenicke, et al., 1987; Liu, 2003) and negative self-schemas are believed to mediate the relationship between emotional abuse and the development of mood disorders (e.g. Wright, Crawford, & Del Castillo, 2009). Lumlow & Harkness (2007) note that many cross-sectional and longitudinal studies implicate cognitive vulnerability processes as valid mechanisms for understanding the role of early adversity in childhood, adolescence and adult depression (e.g. Garber & Flynn, 2001; McGee, Wolfe, & Olson, 2001; Lumley & Harkness, 2009; Rose, Abramson, Hodulik, Halberstadt, & Leff, 1994; Stuewig & McCloskey, 2005). Studies looking at the origins of cognitive vulnerability are beginning to highlight potential links between cognitive and attachment-based theory; this is an interesting area to consider but cannot be examined in detail within the confines of this study (see Scher et al, 2005 for a review).

Triseliotis (1983<sup>4</sup>) proposed that the negative early experiences LAC may have been victim to can negatively impact on the development of a secure self. Statistics show that LAC tend to enter care as a result of parent neglect or abuse (Department for Children, Schools and Families, 2009). This highlights LAC as an at-risk population who are more likely to possess a higher level of cognitive vulnerability than same-aged peers from the general population, consequently emphasising that LAC are a key group to study when conducting research into maladaptive cognitive vulnerability processes.

## **1.4 Rumination**

### **1.4.1 Response Styles Theory**

Nolen-Hoeksema (~~1991~~, 1987, 1991; 1998) proposed that particular response styles (patterns of cognitive processing) that individuals employ in response to depressed mood may act as predispositional risk factors that increase susceptibility to depressive symptoms. A ruminative response style (RRS) is conceived as a tendency to “think repetitively and passively about [one’s] negative emotions, focusing on [one’s] symptoms of distress and worrying about the meanings of [the] distress” (pp. 504, Nolen-Hoeksema, 2000). Conversely, ‘distraction’ is a distinct set of thoughts and behaviours that divert the individual’s attention away from depressive symptoms, in order to lessen the impact of negative mood on memory and information processing (Ingram & Smith, 1984). Whereas rumination is associated with increased rates of clinical and subclinical depression, distractive responses are believed to alleviate depressed mood and reduce the duration of depressive episodes (e.g. Nolen-Hoeksema, Morrow, & Fredrickson, 1993). This effect has been demonstrated in numerous experimental studies in adults (Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998; Lyubomirsky & Nolen-Hoeksema, 1993, 1995; Nolen-Hoeksema & Morrow, 1993; Vickers & Vogeltanz-Holm, 2003) although support is inconsistent in correlational studies (Abela, Brozina & Haigh, 2002; Just & Alloy, 1997; Kuehner & Weber, 1999; Schmaling, Dimidjian, Katon, & Sullivan, 2002).

### **1.4.2 Rumination and Depressed Mood**

Rumination has been demonstrated to prospectively predict the onset, severity and duration of depressive episodes in both adults and adolescents (see 1.4.3. and 1.4.4.) and is associated with reduced responsiveness to both anti-depressant and cognitive-behavioural interventions (Ciesla & Roberts, 2002; Schmaling et al, 2002). This maladaptive process

enhances negative thinking, interferes with instrumental behaviour, impairs problem-solving and erodes social support (see Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Rumination has been linked to a variety of cognitive and social factors: including negative inferential style, dysfunctional attitudes, neuroticism, worry, low mastery, neediness, hopelessness, pessimism, temperament, effortful control and diminished perceived social support (Abela, Vanderbilt, & Rochon, 2004; Abela, Parkinson, Stolorow, & Starrs, 2009; Kuyken, Watkins, Holden, & Cook, 2006; Lyubomirsky & Nolen-Hoeksema, 1995; Nolen-Hoeksema, Larson, & Grayson, 1999; Papageorgiou & Wells, 1999a, b; Robinson & Alloy, 2003; Sarin, Abela, & Auerbach, 2005; Spasojević & Alloy, 2001; Verstraeten, Vasey, Raes, & Bijttebier, 2009). It is considered a transdiagnostic variable that is substantially correlated with a range of mental health problems in both adolescents and adults; including, anxiety disorders, hypomania, substance abuse, poor sleep, eating disorders, suicidal ideation, self-injurious behaviour and pathological gambling (see Nolen-Hoeksema et al, 2008; Rood, Roelofs, Bogels, Nolen-Hoeksema & Schouten-et al, 2009). The adult and adolescent literature is also supportive of the crucial role rumination plays in accounting for the gender difference in depression (Abela et al, 2009; Broderick, 1998; Butler & Nolen-Hoeksema, 1994; Nolen-Hoeksema, Larson, & Grayson et al, 1999; Schwartz & Koenig, 1996).

The tendency to ruminate is relatively stable (Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Nolen-Hoeksema & Davis, 1999) and even those who experience a significant improvement in their depressive symptoms are likely to retain a RRS in response to low mood (Nolen-Hoeksema & Davis, 1999); ~~which confers vulnerability to future depression.~~ Following this, there are strong implications for developing new treatment protocols with an explicit focus on reducing rumination (e.g. Rumination-Focused CBT; Watkins et al, 2007).

The construct of rumination has been extended by certain researchers (Alloy et al, 2000; Robinson & Alloy, 2003; Treynor, Gonzalez, & Nolen-Hoeksema, 2003; Watkins & Teasdale, 2001<sup>14</sup>). Treynor and colleagues (2003) split rumination into two related constructs: brooding

and reflective pondering. Watkins & Teasdale (2001<sup>14</sup>) parallel this divide by proposing a distinction between analytic vs. experiential self-focus rumination. Brooding relates to the analytic construct and these are maladaptive ruminative processes which tend to be evaluated within the wider literature; [whereas](#) reflective pondering and experiential self-focus are not considered harmful (e.g. Burwell & Shirk, 2007; Treynor et al, 2003; Watkins & Teasdale, 2001, ~~2004~~).

### **1.4.3 Adult Literature**

Cross-sectional, prospective and experimental studies have shown that rumination ~~is~~ consistently correlates~~ed~~ with higher levels of experimentally induced or naturally occurring depression over time, even when controlling for depressive symptoms at baseline (e.g. Aldao, Nolen-Hoeksema, & Schweizer, 2010; Blagden & Craske, 1996; Just and Alloy, 1997; Lavender & Watkins, 2004; Lyubomirsky & Nolen-Hoeksema, 1995; Nolen-Hoeksema, 2000; Nolen-Hoeksema & Morrow, 1991; Nolen-Hoeksema et al, 1993; Rimes & Watkins, 2005; Vickers & Vogeltanz-Holm, 2003; Watkins, 2004; Watkins & Moulds, 2005). Following Watkins & Teasdale's (2001<sup>14</sup>) work, induced analytical ruminative processing has also shown reliable associations with elevations in negative mood (Rimes & Watkins, 2005; Watkins, 2004; Watkins & Moulds, 2005) and is linked to both impairments in social problem solving (Watkins & Moulds, 2005) and increases in worthlessness (Rimes & Watkins, 2005). Longitudinal studies with both clinical and non-clinical participants illustrate that individuals who engage in rumination when distressed are more likely to develop depressed mood and suffer from more prolonged episodes when depressed (e.g. Just & Alloy, 1997; Kuehner & Weber, 1999; Nolen-Hoeksema et al, 1999; Nolen-Hoeksema et al, 1993; Nolen-Hoeksema, 2000; Sarin et al, 2005; Spasojević & Alloy, 2001; Watkins, 2004). Additionally, stress-reactive rumination (the inclination to ruminate on negative appraisals in response to stressful life events; Alloy et al, 2000) has been shown to interact with other negative

cognitive styles to predict the prospective onset, number and duration of MDD and hopelessness depressive episodes (Robinson & Alloy, 2003).

#### **1.4.4 Child and Adolescent Literature**

Muris, ~~Roelofs, Meesters, & Boomsma~~ ~~and colleagues~~ (2004) noted that only a limited number of studies have explored ruminative and distractive response styles in young people. They highlighted the need to study the “uniqueness and specificity of this cognitive vulnerability factor in this particular age group” (Muris et al, 2004, pp. 542).

##### **1.4.4.1 Clinical Studies**

Park, Goodyer, & Teasdale (2004) assessed the relationship between rumination, distraction, autobiographical memory and depression in three subject groups (first episode MDD, non-depressed psychiatric patients and community controls). In depressed adolescents, the rumination induction, as compared to distraction, exacerbated depressive symptoms; this effect was additionally evidenced in controls but absent within the non-depressed psychiatric sample.

~~Both articles by~~ However, this article (Park ~~and colleagues~~ et al, (2004), 2005) focuses on depressed adolescents, not those at risk. Therefore, no information on cognitive responses that may emerge prior to the onset of MDD and confer vulnerability to depressed mood is available from these findings. Goodyer, Herbert, & Tamplin (2003) followed a group of 60 12-16 year olds believed to be at high risk of developing psychiatric problems. This group was deemed ‘high-risk’ due to a history of multiple risk factors, including: previous adverse life events, a history of loss, temperamental style of emotionality, parental psychiatric problems and parental marital problems. This group was divided into three groups: 1) Never depressed (at 12 and 24 month follow-up as assessed by DSM-IV psychiatric interview), 2)

Remitted major depression (depressed at 12 but not 24 months follow-up) and 3) Persistent major depression (depressed at both 12 and 24 months follow-up). The adolescents were followed up over a period of 24 months to determine what factors predicted the onset of a major depressive episode, including baseline measures of rumination, endocrine characteristics and the occurrence of detrimental life events. Interestingly, a positive correlation between rumination and persistence was demonstrated, indicating that baseline measures of rumination were predictive of the persistence of depressive symptomatology. Unfortunately, the remitted group was too small ( $n=19$ ) to provide a satisfactory test of whether rumination is an underlying risk factor that might predict the onset of depression.

#### **1.4.4.2 Nonclinical Studies**

Numerous non-clinical studies have supported the hypothesis that response styles predict concurrent and future depression and anxiety in children and adolescents (e.g. Abela et al, 2002; Broderick & Korteland, 2004; Roelofs, Rood, Meesters, Alloy, & Nolen-Hoeksema, 2009; Schwartz & Koenig, 1996; Verstraeten et al, 2009). Rood and colleagues' (2009) meta-analytic review revealed that rumination and distraction significantly correlate with both concurrent and future depressed mood (e.g. Abela et al, 2002; Broderick & Korteland, 2004, Verstraeten et al, 2009); whereby baseline response style questionnaire scores (e.g. CRSQ) are correlated with concurrent and follow-up self-report depressive symptoms (e.g. CDI). However, effect sizes were only stable for rumination and these were modest once baseline levels of depression were controlled for. A reciprocal relationship between rumination and depression has also been evidenced (Nolen-Hoeksema et al, 2007); this fits in with premises proposed by Teasdale (1988) for the 'differential activation hypothesis'. Abela and Hankin (2008) cite Muris et al (2009) to highlight the idea that rumination may merely be an 'epiphenomenon of negative affect, rather than a response to negative mood' (Abela & Hankin, 2008; pp. 157).

#### **1.4.4.3 At-Risk Samples**

Studies using samples known to be at risk of depression can provide information on the risk factors that not only correlate with depressed mood but also predict its onset. Kuyken et al (2006) used neuroticism scores, an established behavioural risk factor for depression, to differentiate a sample of 326 14-18 year olds based on risk. The at-risk group reported higher levels of rumination than the comparison group, independent of depression severity.

Some researchers have also considered the prognostic value that different interactions of response styles may hold for predicting concurrent and future depression, rather than using each individual response style as a stand-alone measure. Abela, Aydin, & Auerbach (2007) administered the Children's Response Style Questionnaire (CRSQ: Abela et al, 2002) to children at high-risk of future depression (i.e. those with a history of parental major depression). In line with previous research, rumination scores were associated with both concurrent and future depression and predicted increases in depression scores at 6 weeks follow-up. This predictive capacity was heightened when the child possessed a combination of both high rumination and low distraction/problem solving (i.e. high ratio scores; the authors calculated ratio scores of response styles by dividing rumination scores by distraction/problem solving scores). High ratio scores proved more strongly associated with both concurrent and future depression than any of the individual response style scores alone. The authors advocate the use of this ratio approach, because it indexes the relative extent to which individuals employ each of the separate response styles. An individual may use both rumination and distraction to a certain degree, which would convey a lower risk of depression than the same individual engaging in relatively more rumination than distraction. This study illustrates the usefulness of employing the ratio method when studying those at high risk of future depression. The findings were not replicated with a community sample (Hilt, McLaughlin & Nolen-Hoeksema, 2010); which may indicate that this approach is uniquely useful ~~with studies of~~ when studying high-risk groups.



Additionally, both distraction and problem-solving were found to be negatively correlated with concurrent and future depression and were predictive of decreases in depressive symptoms (Abela et al, 2007). Problem-solving is an adaptive method of responding to adverse events that has been significantly associated with distraction in both adult (Nolen-Hoeksema & Morrow, 1991) and youth studies (Abela et al, 2002; 2004). Further research is needed to clarify the predictive value of these two constructs due to the mixed results that exist within the literature. This study thus provides an excellent opportunity to explore the role of response styles in predicting concurrent depression in a LAC population and the relationship between the different response styles themselves, whilst simultaneously evaluating the usefulness of ratio methods with a high-risk group.

## **1.5 Overgeneral Memory**

### **1.5.1 Overgeneral Autobiographical Memory**

Williams et al (2007) describe autobiographical memory as “the aspect of memory that is concerned with the recollection of personally experienced past events...it is central to human functioning, contributing to a person’s sense of self...and to pursue goals effectively in the light of past problem solving” (pp. 122). Overgeneral memory (OGM) is a feature of autobiographical memory that has been closely linked to mood and psychopathology.

### **1.5.2 Relationship to Depression**

Williams and Broadbent (1986) pioneered the research on OGM, revealing that suicidal patients retrieved less specific memories in response to cue words. The autobiographical memories that lacked specificity (no time or place reported) tended to describe a summary of repeated occasions, otherwise known as categoric descriptions (Williams, 1996). Research subsequently broadened to demonstrate that categoric OGM is a common feature of both adult (e.g. Brittlebank, Scott, Williams, & Ferrier, 1993; Kuyken & Brewin, 1995; Kuyken & Dalgleish, 1995; Williams & Scott, 1988) and adolescent MDD (e.g. Kuyken & Dalgleish, 2011; Kuyken & Howell, 2006; Kuyken, Howell, & Dalgleish, 2006; Park et al, 2002, 2004), and it also persists in the face of recovery from MDD (Brittlebank et al, 1993; Mackinger, Pachinger, Leibetseder, & Fartacek, 2000; Williams & Dritschel, 1988).

Most studies have employed a cuing methodology similar to the Autobiographical Memory Test (AMT) pioneered by Williams and Broadbent (1986), although a range of cuing techniques have proven effective (Healy & Williams, 1999). Williams and Dritschel (1992) differentiated between two different types of OGM: a) those that refer to an entire class of events (categorical memories) and b) those that refer to an extended period of time

(extended memories). Depressed and suicidal adults only differ from controls in terms of categorical memories; neither extended memories, nor omissions in response to cue words (Williams, 1996), significantly differ in frequency across groups.

Findings illustrate that categoric OGM is associated with various constructs related to depression, such as deficits in interpersonal problem solving (Evans et al, 1992), hopelessness (Swales, Williams and Wood, 2001; Williams & Broadbent, 1986) and imagining the future in a specific way (Williams et al, 1996). Brittlebank et al (1993) described retrieval overgenerality as a trait marker indicative of a vulnerability to persistent depression. They demonstrated that depressed adults who retrieved more categoric OGMs took longer to recover from a depressive episode (Brittlebank et al, 1993). However, measures of OGM do not always show significant correlations with particular self-report mood questionnaires (Kuyken & Brewin, 1995; Jones et al, 1999; Williams, 1996). Park et al (2002) note that this suggests that OGM "is not simply an epiphenomenon of the depressed state" (pp. 268).

### **1.5.3 Relationship to Trauma**

Research has also revealed that OGM is not specific to depression and has been associated with multiple psychopathological presentations, including trauma-related [clinical groups](#) [diagnoses](#) (Harvey, Bryant, & Dang, 1998; Jones et al, 1999; McNally, Lasko, Macklin, & Pitman, 1995; Scott, Stanton, Garland, & Ferrier, 2000). Kuyken and Brewin (1995) found that OGM was associated with a higher frequency of negative intrusions in a sample of depressed women. These intrusions reflected distressing life events, such as physical and sexual abuse. Researchers have hypothesised that OGM may manifest in adulthood following early childhood adversity (e.g. Dalgleish et al, 2003; Kuyken & Brewin, 1995; Williams, 1996). However, [Wessel, Meeren, Peeters, Arntz, & Merckelbach Wessel and colleagues](#) (2001) casted doubts on these theories, as they revealed that MDD, rather

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than a history of trauma, predicts autobiographical memory performance. Kuyken et al (2006) also reported that depressed adolescents without a history of trauma reported more overgeneral memories than depressed adolescents with a history of trauma; this has been found in other youth studies (de Decker, Hermans, Raes, & Eelen, 2003). Despite the inconsistencies within the literature, the hypothesised relationships between trauma, depression and OGM is pertinent to acknowledge when conducting work with LAC groups, this may indicate that categoric OGM is elevated in the LAC population in comparison to ~~the~~ same-aged peers.

#### **1.5.4 Cue Valency**

Various studies suggest that the valency of the cue word impacts on the level of overgenerality reported (Williams et al, 1996) and other factors associated with psychopathology; e.g. depression persistence and future thinking (Brittlebank et al, 1993; Park et al, 2002; Williams et al, 1996). However, researchers have revealed inconsistent results regarding the relationship between depressed mood and the categoric responses to positive vs. negative cue words (Brittlebank et al, 1993; Mackinger et al, 2000; Park et al, 2002, 2004; Williams et al, 1996). Van Vreeswijk & de Wilde (200~~4~~<sup>3</sup>) concluded that depressed individuals are less specific to both negative and positive cues from their meta-analysis. Some researchers believe that the valency effect is not due to valency of the cue nor the retrieved memory but relates to the actual cue word itself: "It may be the case that [OGMs] are elicited by cues reflecting particular autobiographical themes rather than by cues of differing valence" (p. 219, Dalgleish et al, 2003; Raes et al, 2006). However, youth research has not tended to subscribe to this premise, more homogenous results have been observed within the adolescent literature base regarding the relationship between negative valency and depression (see 1.5.6).

### **1.5.5 Relationship to Rumination**

Williams stated that the over-elaboration of categories encourages, and itself is encouraged by, rumination (Williams, Watts, MacLeod & Mathews, 1997). Rumination may act as a block to specific autobiographical retrieval (Williams, 1996). Rumination, in conjunction with the functional avoidance of painful memories and emotions, is proposed to interfere with the supervisory executive processes that are integral to memory retrieval, consequently truncating memory and leading to over general responses (see 'CARFAX' model; Williams, 2006). These categoric descriptions may then serve as themes which individuals might ruminate on (William et al, 1997). In summary, categoric OGM and rumination may be mutually reinforcing in maintaining depressed mood (Williams, 1996). Mediation analyses within a prospective design illustrated that a RRS significantly mediates at least a portion of the association between OGM and depression severity (Raes et al, 2006) and other studies have demonstrated that externally-focused manipulations may reduce overgenerality and improve mood by temporarily interrupting ruminative processes (e.g. Fennell & Teasdale, 1984; Watkins, Teasdale, & Williams, 2000). Various psychological interventions now target ruminative processes with promising results (e.g. Papageorgiou & Wells, 2000; ~~Teasdale, Segal & Williams, 1995;~~ Segal, Williams & Teasdale, 2002; ~~Williams, Teasdale, Segal & Soulsby, 2000;~~ Teasdale, Segal & Williams, 1995; Watkins et al, 2007; Wilkinson & Goodyer, 2008; Williams, Teasdale, Segal & Soulsby, 2000).

### **1.5.6 Child and Adolescent Literature**

The role that OGM plays in the maintenance and onset of depression remains unclear from the adult literature. Adolescent studies can provide more clarity on how early the deleterious effects of rumination and OGM occur within the course of MDD.

### **1.5.6.1 Clinical Studies**

Preliminary evidence indicates a positive correlation between depression and negative categoric memory and adolescents with a diagnosis of MDD show a bias towards retrieving categoric OGMs (Kuyken & Howell, 2006; Kuyken et al, 2006, Park et al, 2002, 2004; Swales et al, 2001).

Park et al (2002) employed a cross-sectional, case control design to demonstrate that categoric OGM is more common in depressed adolescents than controls. The findings indicate that OGM is not necessarily a result of 'scarring' from previous depressive episodes, because the majority of the MDD sample was in their first episode of depression. Categoric memory to negative cues was generally shown to be positively related to depression severity, which may indicate that adolescents' categoric memory may be more mood sensitive to negative cues than adults'; as this result is often small or absent in the adult literature (Jones et al, 1999; Kuyken & Brewin, 1995; Williams, 1996). No specific age or sex effect on categoric memory was found in the clinical samples, however, an inverse correlation between categoric memory and IQ was observed across all groups. This indirectly supports other data (Phillips & Williams, 1997), suggesting that OGM is more common in individuals suffering from lowered cognitive resources.

As aforementioned in section 1.4.4.1, Park et al (2004) investigated the impact of a rumination induction, versus distraction, on mood and OGM in MDD and non-MDD adolescents. The authors found that induced rumination increased categoric OGM in MDD adolescents, and the increase in OGM in the rumination condition was specific to negative cues. The authors note that there appears to be an effect specific to MDD in adolescents, whereby these individuals become stuck in a negative cycle of lowering mood, increasing RRS and negative OGM. This does not appear to be true of non-depressed adolescents, as induced rumination impacts on mood but not memory in these samples. These results highlight similarities between the adult and adolescent literature regarding the processes by

which rumination and OGM operate within depressed individuals. The implications for treatment are promising if adult and adolescent MDD is phenotypically similar, they may both be responsive to interventions which interrupt or moderate rumination (Teasdale et al, 2000).

Park, ~~Goodyer and Teasdale~~ ~~—and colleagues—~~ (2005) continued to explore these relationships in a longitudinal analysis of 94 12-16 year olds with a current diagnosis of MDD. Self-devaluation (global negative view of the self) was considered as an additional factor associated with depression (Dent & Teasdale, 1988). Ruminative style, devaluative thinking and memory biases were significantly inter-correlated but rumination was not observed to predict later MDD.

Williams (1996) suggested that categoric overgenerality is a cognitive bias developed in childhood in response to adverse life events. It may represent a failure to develop the inhibitory processes that are essential for specific memory retrieval. Alternatively, overgenerality may be a by-product of the child learning to avoid the punishing consequences of specific memory retrieval by assuming an overgeneral retrieval style instead. Categoric OGM is thus an important phenomenon to study within the LAC population, due to the early exposure to adversity that characterises this population. Williams' (1996) hypotheses imply that OGM would be elevated in LAC groups, regardless of baseline depression.

#### **1.5.6.2 Nonclinical Studies**

Kuyken & Dalgleish (2011) conducted two independent studies to explore the incidence of OGM in community samples of adolescents. In the first study, 179 adolescents were differentiated ~~ien~~ in terms of their risk for depression; those that scored higher on a neuroticism scale were deemed to be at higher risk of developing depression in later life. Neuroticism was found to positively correlate with categoric memory retrieval to negative cue words and depression severity was found to mediate this relationship. In the second study, risk was

operationalised as a history of depression (now remitted) and categoric memory was found to be more common in adolescents in remission than those that had never been depressed. The authors argue that these studies indicate that categoric memory retrieval is implicated in the first onset of depression in adolescence. However, sample sizes were small in the second sample (n=15 for both groups), so these results must be interpreted with caution. These recent findings indicate that OGM may be identifiable in high-risk groups in addition to those already reporting manifest depressive symptoms. This study provides a valuable platform to evaluate this hypothesis with a different high-risk group to those already studied.



## **1.6 Rationale for Current Study**

In summary, the LAC population are a vulnerable group at risk of developing later mental health problems, due to an accumulation of adverse life events that characterise their childhood. Latent risk of depression may go undetected in individuals who don't present with manifest symptoms of depression. These latent vulnerabilities may be identified by inducing temporary low mood in at-risk individuals (Miranda & Person, 1992; Teasdale, 1988); markers of vulnerability are revealed in terms of changes in self-concept and information processing biases. These latent processes have been highlighted in various high-risk youth populations, and additional maladaptive cognitive constructs (e.g. rumination and negative categoric memory) have also been found to be elevated in similar groups. This study aims to identify whether these markers of vulnerability are identifiable within the LAC population.

Youth research has demonstrated that non-depressed high-risk youths tend to demonstrate [a](#) weaker positive self-concept than controls and reductions in the processing of positive information following the induction of low mood, regardless of baseline depressive [symptoms](#) (e.g. Taylor & Ingram, 1999; Timbremont & Braet, 2004; Woolgar & Tranah, 2010). The same studies have also demonstrated an increase in negative self-concept and a bias towards negative information processing, illustrating a latent risk of depression that is not evident under neutral mood states. This study is aiming to replicate this mood induction paradigm with a LAC group, to explore whether this population tends to show similar sensitivities to induced low mood, in comparison to a control sample. This study will exclude individuals diagnosed with major depression to focus on latent psychiatric risk. However, higher rates of depressive symptomatology are expected in the LAC group, in comparison to controls, due to evidence of unmet need and an increased prevalence of problematic non-clinical symptoms in the LAC population (e.g. Dimigen et al, 1999; McCann et al, 1996; Meltzer et al, 2000, 2003). We are also expecting the entire sample to demonstrate

significant associations between symptoms of depression and negative cognitive constructs during neutral mood (e.g. Woolgar & Tranah, 2010), because currently manifested depressed mood is the naturally-occurring context that activates negative self-schema.

Rumination and negative categoric memory are maladaptive processes that have been shown to predict ~~the~~-concurrent symptoms of depression in adolescents (Hilt et al, 2010; Park et al, 2004; Rood et al, 2009; Schwartz & Koenig, 1996; Swales et al, 2001) and elevated rates of both constructs have been reported in high-risk youths (Kuyken et al, 2006; Kuyken & Dalgleish, 2011). Subsequently, it is predicted that these constructs will positively correlate with depressive symptomatology across the sample and elevated rates will be observed in the LAC group, in comparison to controls (this will be assessed via the use of a questionnaire and an interview task). Previous studies have also proposed that the response style ratio method may be particularly useful for predicting depression in high-risk samples (Abela et al, 2007; Hilt et al, 2010). Studies have not yet compared the usefulness of this approach with two samples side by side (high- and low-risk); so this will also be considered within ~~theor~~ analyses.

## 1.7 HHypotheses

### 1.7.1 Primary Hypotheses [H1]:

H1a) LAC will endorse significantly fewer positive ~~self-adjectives~~self-descriptors ~~than~~  
~~controls in comparison to controls~~ following the negative mood induction, ~~in~~  
~~comparison to the neutral mood condition. This effect will not be evidenced by~~  
~~controls.~~

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~~1.1.~~ LAC will endorse significantly more negative self-descriptors ~~than controls~~  
following the negative mood induction in comparison to the neutral mood  
condition. ~~This effect will not be evidenced by controls.~~

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~~1.2.~~ LAC will endorse significantly more negative self-adjectives in comparison to  
controls following the negative mood induction.

~~1.3.~~H1b) Depression severity will positively correlate with the endorsement of negative  
self-descriptors during the neutral mood condition.

~~1.4.~~H1c) LAC will recall significantly fewer positive self-adjectives in comparison to  
controls following the negative mood induction. LAC will recall significantly fewer  
positive self-descriptors ~~than controls~~ following the negative mood induction in  
comparison to the neutral mood condition. ~~This effect will not be evidenced by~~  
~~controls.~~

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H1d) LAC will recall significantly more negative self-descriptors ~~than controls~~ following  
the negative mood induction in comparison to the neutral mood condition. ~~This~~  
~~effect will not be evidenced by controls.~~

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~~1.5.~~ LAC will recall significantly more negative self-adjectives in comparison to  
controls following the negative mood induction.

~~4.6.H1e)~~ -Depression severity will positively correlate with the recall of negative self-descriptors during the neutral mood condition.

### **1.7.2 Secondary Hypotheses [H2]:**

~~H1a)H2a)~~ LAC will report significantly higher levels of depressive symptomatology than controls.

~~H1b)H2b)~~ LAC will report significantly higher levels of rumination than controls, independent of concurrent depression symptoms.

~~H1c)H2c)~~ Depression severity will positively correlate with rumination and the response style ratio score.

~~H1d)H2d)~~ Depression severity will negatively correlate with distraction and problem-solving. A significant positive correlation will also exist between distraction and problem-solving scores.

~~H1e)H2e)~~ The relationship between depression and the response style ratio score will be significantly moderated by group.

~~H1f)H2f)~~ LAC will report significantly higher levels of categoric memory retrievals to negative cue words than controls, independent of concurrent depression symptoms.

~~H1g)H2g)~~ Depression severity will positively correlate with categoric memory retrieval to negative cue words.

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## **2. METHODOLOGY**

This chapter will describe the overall methodology of the study. The study design will initially be detailed in conjunction with the statistical power analysis, which was employed to calculate the number of participants required to find the predicted effect. The characteristics of the sample and the details of the recruitment process will be outlined, followed by a description of the measures that were utilised and the interview procedure. Information on ethical consent and data protection will also be provided.

## **2.1 Design**

### **2.1.1 Study Design**

This study utilised a mixed factorial design, to explore the relationship between group status and self-concept. The independent variables involved were group status (LAC vs. control) and mood induction (negative vs. neutral). The effect of these variables on the number of positive and negative adjectives endorsed and recalled was then analysed. Rumination, autobiographical memory and depressive symptoms were correlated with these dependent variables to explore how they covaried. Independent t-tests were employed to explore whether any differences in ~~psychometric-response style and categoric memory scores~~ existed between the two groups. Verbal IQ was also ascertained to rule out a potentially confounding effect of verbal ability.

### **2.1.2 Power Analysis**

The GPower programme (Erdfelder, Faul, & Buchner, 1996) was used to compute power. Taylor & Ingram (1999) revealed a very large effect size for the impact of a mood induction task on self concept. The authors studied a group of 40 vulnerable young people and used a similar methodology to the one ~~this-the~~ current study ~~intends-to-has~~ employed. There was a significant decrease in the mean number of positive adjectives endorsed: 16.97 (SD=2.30) to 8.27 (SD=1.44) from the neutral to the negative mood condition, which suggests an effect size of 4.3 (based on an analysis using GPower for a post hoc power calculation). Comparatively large effect sizes for the association between depressive symptoms and self-~~descriptor endorsement data -concept evaluations~~ have been reported. Gençöz and colleagues (2001) employed a sample size of 58 and reported strong correlations between depressive symptoms and the number of positive/negative adjectives endorsed ( $r = -.70$  and

$r = .51$  respectively).

The sample size for a mixed ANOVA analysis was calculated by specifying a medium effect size of  $f = 0.25$  at  $p = 0.05$  level of significance with a power of 85% and yielded a minimum sample size of 13 in each group. Therefore, a minimum of 13 participants in both the LAC and control group were needed to satisfy statistical power for the primary hypotheses.

However, group sizes of 39 were needed to detect differences between the groups for both positive and negative categorical memory biases based on the means and standard deviations obtained by Park and colleagues (2002); employing a beta value of .80 and an alpha of .05. In light of this, the study aimed to recruit group sizes of 39 'Looked After' children and 39 controls in order to satisfy power for both the mixed ANOVA and autobiographical memory test (AMT). This latter objective was achieved for the control group but recruiting a similar number of LAC was ~~an insurmountable~~ not realistic task within the limited time frame available.

However, a sufficient number of LAC participants were recruited to ensure that the study was adequately powered to detect a difference between the groups with respect to the primary hypothesis. Exploratory analyses were performed on the autobiographical memory data to provide some information on the relationship between autobiographical memory, response styles and depressive symptomatology; however, these results need to be interpreted with caution due to the power criteria not being met for the AMT data.

## 2.2 Participants

### 2.2.1 Demographics

In total, 62 adolescents, aged between 11-17 years old, participated in the study. A total of 21 adolescents were recruited into the LAC group and 41 were recruited as controls ([see Table 1 for demographic characteristics](#)). The LAC group was comprised of adolescents living with foster families, in private fostering arrangements and in supported living hostels. Parental responsibility was either held jointly by birth parents/other family members or social services only. Participants from the control sample were living with their families of origin at the time of assessment, under parental responsibility of their birth parents. All participants spoke fluent English and no physical or moderate to severe learning disabilities were identified. Only two participants noted that English was not their first language.

**Table 1: Demographic characteristics by group and for the total sample.**

	<b>LAC (N=21)</b>	<b>Controls (N=41)</b>	<b>Total (N=62)</b>
<b>Age</b>	<b>14.7(2.34)</b>	<b>14.1(1.47)</b>	<b>14.3(1.82)</b>
<b>Female</b>	<b>81%</b>	<b>70%</b>	<b>73%</b>
<b>VIQ</b>	<b>85(7.30)</b>	<b>100(13.01)</b>	<b>94.6(13.1)</b>
<b>CDI</b>	<b>50.8(9.8)</b>	<b>50.5(7.7)</b>	<b>50.6(8.4)</b>

**NB: Each cell includes the mean and standard deviation as shown: Mean (SD).**

Of the 21 adolescents in the LAC group, 4 were male (M= 13.02 years; SD=2.54) and 17 were female (M=15.20 years; SD=2.10). The mean age of the group was 14.7 years (SD=2.34), with an age range of 11.33 to 17.92 years. Ethnicity data was collected by asking the participant to describe their own ethnicity. Thirty-three percent of the sample was comprised of Black African participants, 19.1% were Jamaican, 14.3% described themselves

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as Black Caribbean, 14.3% were Black British and 4.7% described themselves as Afro-Caribbean. The majority of these groups also described themselves as part British (e.g. Black British/African). Only 4.7% were White British, another 4.7% were British Chinese and another 4.7% were White Irish.

The control group consisted of 41 adolescents with a mean age of 14.1 years ( $SD=1.47$ ), and ages ranging from 12.08 to 16.92 years. Of this group, 13 were male ( $M=13.8$  years;  $SD=1.41$ ) and 28 were female ( $M=14.2$  years;  $SD=1.49$ ). The ethnic composition of the sample can be broken down as follows: 43.9 % were White British, 17.1% were Black African, 17.1% were Black Caribbean, and 9.8% were White and Black Caribbean. Black other made up 4.9% of the control sample, and another 4.9% were Indian. Only one person (2.4%) described themselves as Chinese. ~~—(better in results??)~~

### **2.2.2 Recruitment**

The LAC group were recruited via liaison with Lewisham LAC Social Services and Lewisham Care Leavers service. Proposals to promote recruitment were presented during team meetings to inform social workers and team members of the study and the recruitment process. Team members were made aware of the inclusion and exclusion criteria and asked to identify adolescents that may be suitable to participate in the study. The team member extended this invitation to participate to the adolescent and their foster carers and/or birth parents when appropriate. If the adolescent wished to participate then, with their consent, their contact details were passed onto the researcher and they were given a copy of the information and consent sheets for both them and their carer to consider. The researcher then contacted the adolescent and their carer via the telephone to arrange a time to interview the young person. The participant was interviewed within their home or at school, depending on their personal preference.

The researcher was also invited to attend a ~~fair~~ put on by Lewisham Social Services for LAC adolescents and their carers, to invite families to take part in the study. The social worker was contacted by email if the young person and their carers wished to take part and asked if they considered it appropriate for the young person to participate. This was also upheld for young people over the age of 16, who were able to give consent for themselves without the consent of a professional or carer.

One participant recruited via Lewisham Social Services requested to be tested at their local college. The researcher met with the college SENCO and was informed that some of the college's students were under parental responsibility of social services and may be interested in taking part in the study. This was approved by the college's associate principal and three participants were recruited via this route. Each participant was over the age of 16 and the consent procedures outlined above were maintained.

The control sample was recruited from three sources. Two local Secondary Schools within South East London provided over half of the sample (n=22); both schools demonstrated similar cultural and socio-economic demographics one would expect within the LAC population. Recruitment via advertising using on-site (Institute of Psychiatry) circular emails and classified internet sites (Gumtree.com©) was also used to ensure a sufficient number of participants were recruited to satisfy statistical criteria (n=19). Data was collected over a period of 6 months.

The sampling method varied across the groups. The LAC group were recruited based on the judgement of the social worker. Once the researcher had permission to contact the participant and their carer, they then had the opportunity to opt out of the interview. Only three young people that were approached declined to take part, and one family declined to take part due to parental disagreement. The control group were recruited by young people

and families volunteering to take part, either within the school setting or by email. (matched  
on gender??)

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### **2.2.3 Inclusion and Exclusion Criteria**

Participants had to be between 11-17 years old (inclusively) and speak fluent English. Participants that would require interpreters to take part were excluded due to the verbal-based tasks involved in the study. Participants were not excluded on the basis of English being a second language but this did pose potential risks of misunderstanding when answering verbal questions. Every participant was encouraged to approach the investigator with questions if they were not clear as to the information provided on the information sheet and consent form, or if they misunderstood certain sections of the experimental task, to help resolve any queries.

Participants with severe physical, sensory or learning disabilities were also considered ineligible to participate. Children who held a current diagnosis or recent history of clinical depression (according to the ICD-10) were also excluded from participating. The study was aiming to identify those at risk of depression, not those who are actively depressed.

## **2.3 Measures**

### **2.3.1 Self-Referent Encoding Task (SRET)**

#### **2.3.1.1 Assessment of Self-schemas**

A modified version of a questionnaire (Woolgar & Tranah, 2010) that has been previously employed in studies with young people (Hammen & Zupan, 1984; Kelvin et al, 1999) was used to assess self-concept. Parallel forms of the questionnaire were employed to minimise learning effects between repeated conditions; each form was comprised of 15 positive and 15 negative adjectives; 60 adjectives in total. These adjectives are semantically matched across forms to ensure that content is similar (e.g. sad-unhappy; kind-caring). Each version has 3 different neutral filler adjectives at the beginning and end of the form; 12 in total. Ratings for the self-descriptors are marked on a 4-point likert scale (from 1 - "Not at all like me" to 4 - "Very much like me"). See Appendices 6.6 and 6.7.

#### **2.3.1.2 Incidental recall**

This task involves the participant being asked to recall as many adjectives as possible (positive and negative) that they can remember from the questionnaire; regardless of whether they have previously endorsed the items or not. Each participant was given a maximum of 5 minutes for recall and a maximum of one prompt was used (e.g. 'Can you remember anymore?') without the provision of additional words. This method has been used with both adults and adolescents to provide an index of information processing (Kelvin et al, 1999; Kuiper & Derry, 1982; Teasdale & Dent, 1987).

### **2.3.2 Coding and data derivation**

The self-schema data was calculated by summing the endorsement scores for both the positive and negative adjectives separately to obtain a total score for each. The incidental recall scores were determined by calculating the number of endorsed self-descriptors as a percentage of the total number of self-descriptors endorsed (Prieto et al, 1992; Woolgar & Tranah-Tranah, 2009~~10~~). The recall scores were calculated for the positive and negative words separately. The number of intrusions were also recorded and categorised according to valency.

### **2.3.3 Verbal IQ**

Due to the language-based tasks included in the study, an estimate of current verbal IQ was obtained. The two verbal subscales (Information and Similarities) from the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999) provided an estimate of verbal fluency (see Appendix 6.8). The internal consistency reliability coefficients for the WASI scales demonstrate that the verbal scales have combined coefficients of .92 to .95 for 11-17 year olds (Wechsler, 1999). This measure also demonstrates good VIQ test-retest stability for a sample of 55 12-16 year olds, where  $r=.94$  (Wechsler, 1999).

### **2.3.4 Measures of Depressed Mood**

The Children's Depression Inventory (CDI; Kovacs, 1992) was employed to assess the severity of symptoms associated with depressed mood and provide a dimensional measure of depression (see Appendix 6.9). The 10~~10~~-item CDI is a short self-report assessment form for use with children and adolescents. A ~~three~~3 point likert-scale (0-2) is used to score items. Children are required to pick one sentence out of three provided for each item. For example, a child is asked to pick the sentence that describes them best from "I do not feel alone", "I feel alone many times" and "I feel alone all the time". The CDI short form

demonstrates adequate levels of internal consistency ( $\alpha = .80 - .94$ ) and is highly correlated with the full 27-item CDI (Kovacs, 1992). The T-score was used in the current study as this value is standardised according to age and gender; a T-score of 65+ is believed to indicate clinically significant features of depression.

### **2.3.5 Children's Response Styles Questionnaire**

Thinking style was assessed using the Children's Response Styles Questionnaire (CRSQ; Abela et al, 2002): see Appendix 6.8+6. This scale is a 25-item self-report measure adapted from the adult Response Styles Questionnaire (RSQ; Nolen-Hoeksema & Morrow, 1991). Participants rate how frequently they engage in particular response styles when they experience sad feelings. These styles are categorised into subscales: (1) Ruminative response Subscale (CRSQ-Rumination), (2) Distracting Response Subscale (CRSQ-Distraction) and (3) Problem-Solving Subscale (CRSQ-Problem Solving). The Rumination subscale is comprised of 13 items depicting self-focused response styles (e.g. "Think about how sad you feel") and the distraction subscale includes 7 items that describe strategies used to divert attention away from the problem (e.g. "Read a book or magazine"). The final subscale covers 5 items and considers how the individual might overcome their depressed mood (e.g. "Think of a way to make your problem better"). For each item, participants were asked to rate how often they engage in particular response style using a 4-point Likert scale: ranging from 0 (almost never) to 3 (almost always). Higher scores on a subscale denote a stronger tendency to demonstrate that particular response style.

The CRSQ has been used in previous research exploring the link between rumination and depressed mood in young people (e.g. McLaughlin & Nolen-Hoeksema, 2011). McLaughlin and Nolen-Hoeksema (2011) reported good reliability for the rumination subscale ( $\alpha = .86$ ) and moderate levels of internal consistency were demonstrated for all three subscales by Abela and colleagues (2001; 2002). These authors additionally highlighted the a positive

correlation between depressive symptoms and rumination scores, whereas depressive symptoms and the remaining two subscales were negatively correlated (Abela et al, 2004). The ratio score method promoted by Abela et al (2007) will also be calculated to explore whether this score is uniquely associated with depression in the LAC group.

### **2.3.6 Autobiographical memory task**

Overgenerality of autobiographical memory was assessed using the Autobiographical Memory Test (AMT; Williams & Broadbent, 1986). Existing studies have successfully used this cued-recall method to elicit autobiographical memories in both adults (see Williams et al, 2007 for a review) and adolescents (Kuyken et al, 2006; Park et al, 2002; 2004, Swales et al, 2001). Three practice items were presented to the participant so they could receive feedback if necessary to clarify the type of answers needed (e.g. specific autobiographical memories). Following two neutral items, six positive and six negative words were presented to the participant following a set of standardised instructions (see Appendix 6.1<sup>13</sup>; Park et al, 2004). The participants were given 60 seconds in which to recall a specific memory of a personal event following each cue word. Responses were categorised as 'specific' if the event recalled lasted for less than one day; 'categorical' if the memory retrieved was in a general class of repeated events; 'extended' if the event lasted for more than one day; or 'omitted' if no memory was provided by the participant. Repeated memories were also recorded. The responses were summed according to category and cue word valency. Some youth studies (Kuyken & Dalgleish, 2011; Park et al, 2002, 2004) have suggested that adolescent autobiographical memory shows specific mood sensitivity effects to negative cue words. Consequently, statistical analyses were run using the response data for the positive and negative cue words separately.

## 2.4. Procedure

### 2.4.1. Overview of procedure

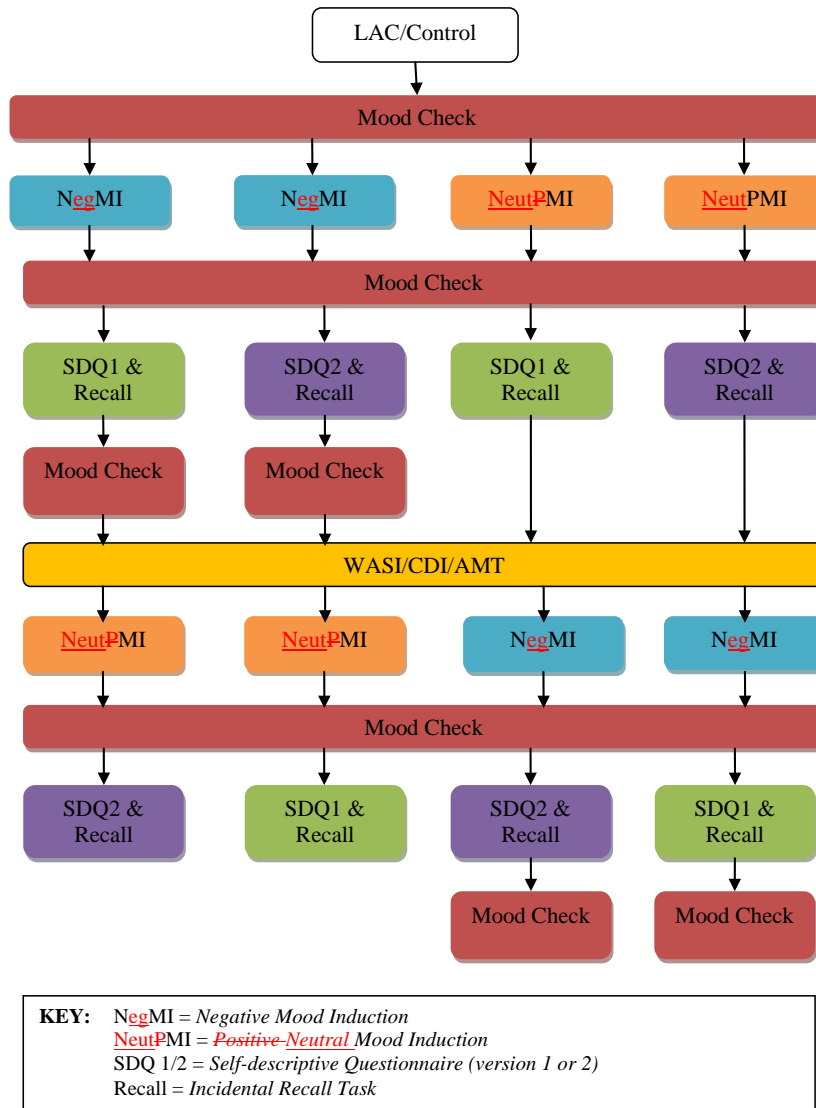
Participants from each group were randomly assigned to one of four conditions (see Figure 1); to counterbalance the order of the mood induction and self-descriptive questionnaires. The procedure was administered to each participant individually. Each participant attended a single session that took approximately 40-50 minutes in total. It was ensured that the room in which the testing took place ~~in~~ was quiet and free from interruption; this provided an environment conducive to maintaining confidentiality and thus encouraged the young person to feel safe enough to respond freely to the stimuli provided.

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A baseline mood check (see Appendix 6.944) was administered prior to the first mood induction condition (negative or neutral). Participants were encouraged to get into the appropriate mood state and stay in that state until the induction task was complete. The mood check was then re-administered to verify mood state. Following this, the first self-descriptive questionnaire was carried out. The incidental recall task then followed completion of the questionnaire. A battery of psychometric tests to assess verbal IQ, depressive symptomatology, rumination-response styles and autobiographical memory was delivered prior to the administration of the remaining mood induction condition (procedure repeated as above). Participants were then prompted to return to their normal mood following the negative mood condition; a final mood check was used to ensure this normalisation of mood had been successful. Upon completion of the interview, participants were given £10 for their time and participation.



Figure 14: Flowchart of the testing procedure



### 2.4.2 Mood induction

Musical and autobiographical mood induction techniques were used to induce the required mood state during both mood induction conditions (neutral and negative). Musical mood induction is purported to be more sensitive than other priming techniques and preferable for

cognitive vulnerability research (Willem, 2002). Holst's "Neptune – the mystic" was played at normal speed e.g. (McFarland, 1984; Woolgar & Tranah, 2010) in the neutral condition and Prokofiev's "Alexander Nevsky-Russia Under the Mongolian Yoke" was played at half speed (e.g. Kelvin et al, 1999; Woolgar & Tranah, 2010) to induce negative mood. Pilot trials by Woolgar & Tranah (2010) illustrated an aversive impact of listening to 7 minutes of music (cf. Kelvin et al, 1999) on children with attentional difficulties. Young people in the experimental group were predicted to show similar difficulties with sustaining attention, as observed in Woolgar and Tranah's sample. Therefore, autobiographical techniques (Taylor & Ingram, 1999) were used to supplement a shorter period of music (approx. 2-3 minutes). This combination of methodologies has been shown to be an effective method of inducing a particular mood state in both adult and adolescent samples (Ingram & Ritter, 2000; Woolgar & Tranah, 2010). Therefore, whilst listening to music, the participant was asked to think of either a time they or someone else was sad to induce low mood and they were asked what they might normally do in the evenings during the neutral condition (see Appendix 6.10 [2](#) for standardised instructions).

### **2.4.3 Validity of the Mood Induction Procedure**

The validity of the mood induction was determined according to a method employed by Woolgar and Tranah (2010). The relevant mood check was subtracted from its baseline in order to calculate the effect of each individual mood induction and a repeated measures ANOVA was run on these values to confirm the predicted impact of the induction conditions on mood for the four emotions utilised (happy, angry, sad, anxious). The ANOVA tested the following order of the trials: neutral, negative and return to baseline mood; so that a quadratic effect would reveal a significant drop in mood following the negative mood condition.

#### **2.4.4 Counterbalancing**

Counterbalancing was used to control for any effect of confounding amongst the order of the conditions. The mood induction procedures were designed to produce 4 conditions that successfully counterbalanced the mood induction conditions (negative vs. neutral) and the parallel versions of the self-descriptive questionnaires (Figure 1).

#### **2.4.5 Piloting**

A pilot of the testing procedure was conducted with two participants to help identify any potential problems with the procedure, ensure that the mood induction procedure successfully changed participants' mood and evaluate the participants' experience of the interview. No concerns were raised and satisfactory changes in mood were recorded on the mood checks administered. Consequently, no changes were made to the tasks or the protocol ~~itself~~.

## **2.5 Ethical Issues**

### **2.5.1. Research Ethics Approval**

Ethical approval was sought and granted from the East London and the City Research Ethics Committee 2 (reference number: 11-LO-0245). ~~see Appendix 6.1a).~~ A substantial amendment was also approved to allow for recruitment via internal circular email and classified internet advertisements. This was granted by the City and East Research Ethics Committee (reference number: 11-LO-0245). ~~see Appendix 6.1b).~~

### **2.5.2 Negative Mood Induction**

Each participant was encouraged to become low in mood at one point during the interview process. This was only a temporary state of mind which lasted for up to 10 minutes. It was followed by prompts ~~to facilitate~~that facilitated a return to normal mood (i.e. questioning of daily, routine events). Each participant was debriefed at the end of the task and frequent mood checks ensured that the participant's mood returned to normal prior to completion of the interview. This technique has been used in previous studies and has not been associated with any lasting alterations in mood or other adverse effects (Ingram & Ritter, 2000; Kelvin et al, 1999; Taylor & Ingram, 1999; Woolgar & Tranah, 2010).

### **2.5.3 Information Provided Prior to Participation**

Information and consent forms were provided prior to the interview taking place (see Appendices 6.1 to 6.5~~422~~). Participants were made aware that their information would be kept confidential, except in the event that they were at risk of significant harm, to themselves and/or others. Disclosure was not required bar one control case. The participant obtained a T-score of 81 on the CDI and demonstrated very negative self-concept in both mood

conditions. With the participant's consent, this information was passed onto the SENCO and school counsellor; both of whom were aware of the child's current problems.

#### **2.5.4 Informed Consent**

Informed written consent was obtained from all participants and whoever held parental responsibility at the time of testing. If a 'Looked After' adolescent was considered eligible to participate, then an invitation to take part was extended to the young person and their foster parent via the social worker/appropriate team member. The foster parent and child then either contacted the researcher via the phone/email or they consented for their contact details to be forwarded to the researcher. Participants were followed up via the phone/email to arrange a time to complete testing. Information and consent sheets were emailed or sent to the participants via post prior to testing. They were given the option to withdraw themselves and/or their data at any point. LAC participants were tested at home or school according to their personal preference. Young people over the age of 16 were able to give their own consent, without carer or professional consent. However, the carer and professional were made aware of the nature of the study and how the interview would take place and consent from all 3 parties was obtained where possible.

Control participants were provided with copies of the information and consent sheets by their form teachers, to take home to their parents. Teachers ensured that the children recruited as controls were all non-LAC. Children that brought back consent sheets signed by both themselves and their parents were then tested at the school.

#### **2.5.5 Participant Feedback**

The general feedback from participants indicated that they found the interview content unfamiliar (e.g. talking about feelings and self-concept) but enjoyed spending time talking to

an adult about themselves. They said that they found the process interesting and they were keen to find out the results of the study.

### **2.5.6 Data Protection**

The requirements of the Data Protection Act were complied with at all times. The test documents remained anonymous; these were numbered according to the order in which the participants were tested and their age and gender was written on the cover sheet (birth dates were not used to maintain confidentiality). Participant names and addresses only featured on ~~the~~ consent forms and receipts; these were kept in a locked filing cabinet within the Institute of Psychiatry.

## 3. RESULTS

### 3.1. Introduction to the Chapter

A preliminary analysis of the descriptive data was initially conducted to explore whether any differences existed between the two groups in terms of demographic data. Verbal IQ was included to ascertain whether this factor significantly impacted upon any of the associations observed. A mixed design was then employed to explore the interactions between group status and self-concept [H1]. Bivariate correlations were conducted to explore whether the demographic or psychometric data significantly impacted on the dependent variables (endorsement and recall of self-descriptors). The independent variables involved were group status (LAC vs. control), mood induction (neutral vs. negative) and the valency of the self-descriptor endorsed (negative vs. neutral). The self-descriptor endorsement and recall data-sets ~~were~~ continuous and normality assumptions for the recall data were not violated according to visual inspections of histograms and QQ-plots; one participant was removed from the endorsement dataset due to their data providing significant outliers, ~~which this~~ consequently improved normality for this dataset. Therefore, repeated measures factorial ANOVAs were chosen to analyse the primary hypotheses for positive and negative self-concept separately. These analyses were ~~completed with the endorsement data first and then~~ repeated with the recall data [H1]. Independent t-tests and bivariate correlations were employed to test the secondary hypotheses [H2]; to examine a) whether significant differences exist between LAC and controls in terms of depression severity (CDI), response style (CRSQ) and/or categoric memory responses (AMT) and b) whether any significant correlations between depression severity, response style and categoric memory were present. Lastly, a simultaneous, multiple regression was conducted to test whether the response style ratio score was uniquely associated with the LAC group [H2~~ef~~].

### **3.12. Preliminary Analysis**

A preliminary analysis of the descriptive data was conducted to ~~ensure that~~ explore whether significant differences ~~did not exist~~ ed between the two samples in terms of age, gender or verbal IQ. ~~The study hypotheses will be referred to when calculating whether any discrepancies exist between the depression, rumination and categoric memory scores for both groups.~~ Normality tests of the self-descriptor endorsement data identified a significant outlier in the control group. This participant was found to be expressing a high level of depressive symptoms (CDI T-score =81) and the school reported they were under the care of a local CAMHS. ~~This particular~~ Their CDI score was ~~also~~ 4 standard deviations above the mean; this individual's data was thus removed from the control group to improve normality (N=40).

#### **3.21.1. Age**

An independent samples t-test revealed that there was no significant difference in mean age between the LAC (mean in years=14.74, S.D=2.34) and control (mean in years=14.10, S.D=1.46) group,  $t(28.4)=-1.15$ ,  $p=.26$ .

#### **3.12.2. Gender**

A Chi-square analysis illustrated that there was no significant difference in gender between the LAC (19% male, 81% female) and control (30% male, 70% female) group,  $X^2(1)=.85$ ,  $p=.36$  ~~56~~.



### 3.12.3- Verbal IQ

An independent samples t-test illustrated that a difference in verbal IQ (VIQ) ~~does exist~~existed between the LAC (VIQ=85; SD=7.30) and control group (VIQ=100; SD=13.01),  $t(58.7)=5.50$ ,  $p<.001$ . ~~Thus~~Consequently, the relationship of VIQ to the dependent variables was tested using bivariate correlational analyses, to investigate whether this difference in VIQ between the groups could explain any group differences (~~see section ??~~). The VIQ data was significantly associated with the descriptor endorsement data and was subsequently included in these analyses (see section 3.2).

### 3.12.4- Validity of the ~~M~~mood ~~i~~induction

Following Woolgar & Tranah's (20~~1009~~) protocol, each mood check was subtracted from its baseline to calculate the effect of each mood induction. The difference in means was calculated for the neutral, negative and post-negative induction assessments respectively and repeated measures ANOVAs were run to confirm the predicted impact of the induction conditions on mood for the four emotions utilised (happy, angry, sad, anxious). If participants experienced a dip in their mood in the middle [negative induction] condition, followed by a return to normal mood post induction, a significant quadratic component would be expected. Consistent with an effective mood induction, the results demonstrated significant quadratic (all  $p<.001$ ) and non-significant linear ( $p>.10$ ) components within polynomial contrasts for all four emotions; replicating Woolgar & Tranah's (20~~1009~~) findings. See Appendix ~~??~~6.12 for an illustration of the change in happy affect over the conditions.

## 3.3.2 Analysis of the Endorsement Data

### 3.3.2.1 Covariates of Endorsement Data

Pearson's product-moment correlation coefficients were calculated to provide bivariate associations between the demographic data (group, gender, age and VIQ), endorsement data (positive and negative descriptors) and depression scores (CDI). This allowed an examination of the associations between the endorsement data and the demographic/depression data, to explore whether any of these variables needed to be controlled for within the primary analyses. It is important to use the neutral mood condition as the context in which to examine the relationships between these sets of variables, as this provides an indication of what interactions are concurrently active during the individual's 'normal' mood state (indicated by the CDI).

The extended, omitted and repeated variables from the AMT are not included due to low frequencies within these data sets.

**Table 2: Correlations between demographic characteristics of the entire sample and the adjectival/psychometric data.**

	Neutral induction (N=60)		Negative induction (N=60)	
	<i>Positive descriptor</i>	<i>Negative descriptor</i>	<i>Positive descriptor</i>	<i>Negative descriptor</i>
Age	.0326	.2246	-.0878	.214
Gender	-.1195	.279*	-.309*	.392**
VIQ	-.2435	.113	-.0769	-.0326
CDI	-.102	.530**	-.0108	.4195**

NB: \*Correlation is significant at the  $p < .05$  level.

\*\* Correlation is significant at the  $p < .01$  level.

Table 24 reveals that gender was associated with the majority of the self-descriptor data across the entire sample; for example, a significant association between gender and negative ( $r=.27$ ,  $n=60$ ,  $p<.05$ ) self-descriptors was revealed within the neutral mood condition. Descriptive statistics indicate that females generally endorse fewer positive self-descriptors and more negative self-descriptors across both mood conditions in comparison to males, regardless of group (see Appendix 6.14). Therefore, it is necessary to include gender as a covariate within the primary analysis. A significant relationship between depression symptomatology and negative self-descriptors was also observed ( $r=.53$ ,  $n=60$ ,  $p\leq.001$ ), indicating that this variable needed to be included as a covariate within the ANOVA examining negative self-concept. Correlational analyses were also run for each group (LAC vs. control), to explore whether any marked differences were revealed when the data was split by group, see Appendix 6.134.

### 3.23.2. Relationship to Depression

It was predicted that depression severity would significantly relate to the endorsement of negative self-descriptors in the neutral mood condition [ $H_{12c}$ ], because current depression negatively biases self-concept as negative schemas are activated by current depressed mood. The relationship between depression severity and the endorsement of negative self-descriptors was confirmed by depression scores only showing a significant relationship with negative ( $r=.53$ ,  $n=60$ ,  $p\leq.001$ ), not positive ( $r=-.10$ ,  $n=60$ ,  $p=.44$ ), self-descriptors (see Table 24).

### 3.23.3. Cognitive Vulnerability: Endorsement Data

To test the primary hypotheses [ $H_{1a,b}$ ] that the LAC group would endorse fewer positive and more negative self-descriptors following the negative mood induction than the control group (in comparison to the neutral mood condition), mixed factorial ANOVAs were run

separately for both the positive and negative self-descriptors, to account for the specificity in ~~their~~ hypotheses. The main and interaction effects of one between-group factor (group: LAC vs. controls) and one within-group factor (mood induction: neutral vs. negative) were calculated for each set of descriptors (see Table 32 for means and standard deviations). The data from one LAC participant was not included as they refused to complete both mood conditions (omission for negative mood induction). The results from the mixed ANOVA for the positive self-descriptor data will be presented first, and the results for the negative self-descriptor data will follow.

**Table 223:** The mean and standard deviation of the sum of self-descriptors endorsed.

	Neutral Mood		Negative Mood	
	Positive descriptors	Negative descriptors	Positive descriptors	Negative descriptors
LAC (N=20)	42.105 (6.80)	21.20 (3.90)	40.545 (5.82)	22.550 (4.437)
Control (N=40)	40.60 (5.765)	21.30 (3.986)	41.00.95 (5.24)	21.657 (4.325)

NB: Each cell includes the mean and standard deviation as shown: mean (SD).

### ~~3.2.3.1 3.3.3.1.~~ Positive Self-Concept

~~It was~~We predicted that the LAC group would endorse significantly fewer positive self-descriptors following the negative mood induction in comparison to controls [H1a]. The correlational results available in Table 24 reveal that gender ~~was~~ significantly associated with positive adjectival endorsement in the negative mood condition,  $r = -.30$ ,  $n = 60$ ,  $p < .05$ . ~~Descriptive statistics indicate that females generally endorse fewer positive self-descriptors and more negative self-descriptors across both mood conditions in comparison to males, regardless of group (see Appendix 6.145).~~ Therefore, gender was included as a second independent variable within ~~this current~~the following analysis, to control for the effects of gender on the dependent variable (Table 4 shows that main effects without gender as a covariate).

**Table 4: Mixed ANOVA for endorsed positive self-descriptors by induction and group.**

Source	Df	F	$\eta^2$	p
Induction	1	1.37	.023	.25
Induction X Group	1	3.33	.054	.07
Error (within groups)	58			

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**Table 35: Within-group Mixed ANOVA for endorsed positive self-descriptors by induction and group, and covarying for gender.**

Source	Df	F	$\eta^2$	p
Induction	1	.28	.022	.60
Induction X Gender	1	1.27	.017	.26
Induction X Group	1	3.81	.06405	.06
Induction X Gender X Group	1	1.06	.033	.31
Error (within groups)	56			

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An interactional effect of induction and group was revealed that approaches significance,  $F(1,56)=3.807$ ,  $p=.056$ ,  $\eta^2=.06$  (see Table 53). See Appendix 6.15 for SPSS output. This interaction reveals a marginal non-significant trend in favour of our hypotheses, indicating that the LAC sample tended to show a drop in positive self-concept following the negative, as compared to the neutral mood induction; a difference that wasn't demonstrated by the control sample, see Figure 2. Simple effects analyses confirmed a non-significant trend.

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- Can do simple effects analysis here to look at paired t tests for a) LAC and b) controls between neutral and neg condition for pos concept. LAC will show a trend and controls non-sig. Sent Matt t-test outputs in word doc to do this simple effect analysis

**Table 333: Repeated measures ANOVA for positive self-descriptors**

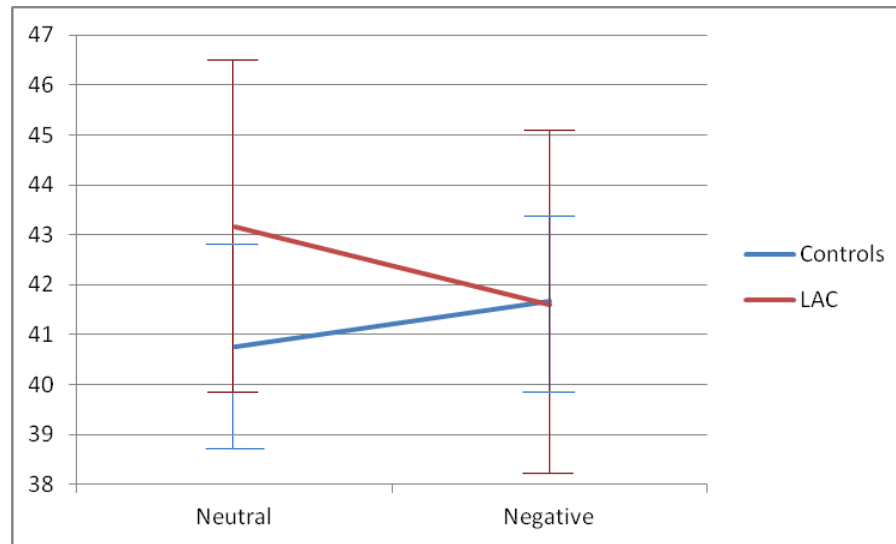
Source	Df	F	$\eta^2$	p
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Field Code Changed

Main Project  
Cognitive Vulnerability in LAC

Induction	4	.28	.022	.60
Induction X Gender	4	1.27	.017	.26
Induction X Group	4	3.84	.005	.0656
Induction X Gender X Group	4	1.06	.033	.31
Error (within groups)	56			

**Figure 22:** A graph illustrating the interaction between group and mood, for positive descriptors (controlling for gender).



### 3.2.3.2.3.3.2. Negative Self-Concept

A similar analysis was repeated with the negative descriptors, to explore the further prediction that, as for adult samples, the LAC group will endorse more negative self-descriptors following the negative mood induction than the control group [H1b]. Depression scores were controlled for, in addition to gender, because these variables were shown to significantly impact on the endorsement of negative descriptors within both mood conditions (Table 6 shows the main effects without covariates). No significant interaction effect of group and mood induction was revealed following these analyses,  $F(1,55)=.27$ ,  $p=.60$ ,  $\eta^2=.005$  (see Table 7; Figure 3). See Appendix 6.16 for SPSS output.

**Table 6: Mixed ANOVA for endorsed negative self-descriptors by induction, and group.**

Source	Df	F	$\eta^2$	p
Induction	1	2.30	.038	.14
Induction X Group	1	.97	.016	.33
Error (within groups)	58			

Table 447: Repeated measures Within-group Mixed ANOVA for endorsed negative self-descriptors by induction, and group, and covarying for gender and depression severity.

Source	<i>Df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Induction	1	1.214	.022	.28
Induction X Depression	1	.97	.0247	.33
Induction X Group	1	.27	.005	.60
Induction X Gender	1	1.88	.033	.18
Induction X Group X Gender	1	.11	.002	.75
Error (within groups)	55			

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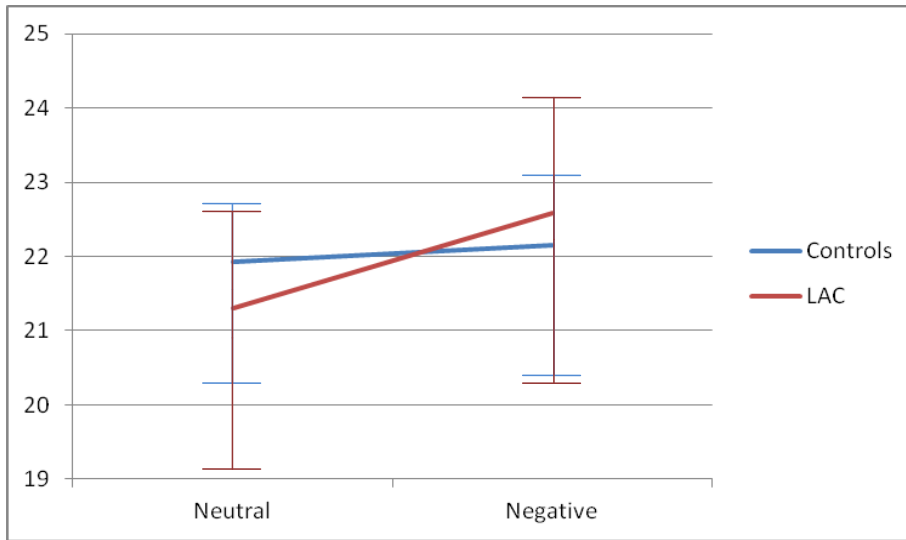
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Figure 3: A graph illustrating the non-significant interaction between group and mood for negative descriptors (controlling for gender and depression severity).





Covariates appearing in the model are evaluated at the following values: CDI T-score = 51.08.

### 3.34. Analysis of the Recall Data

Normality of the distribution of the differences between induction conditions for the recall data was visually inspected using histograms and QQ-plots, no significant violations of normality were observed. Recalled intrusions (i.e. adjectives not presented in the word lists) are not included in the analysis due to the low frequency of values within this part of the data set. ~~Two~~ control participants ~~se~~ only completed the incidental recall task for ~~one~~ the negative mood induction condition, ~~therefore N= 20 for the LAC group and N=39 for the control group for the mixed factorial ANOVA~~ (see Table ~~85~~ for means and standard deviations).

Table ~~558~~: The mean and standard deviation of the number of descriptors recalled.

	Neutral Mood			Negative Mood		
	<i>N</i>	<i>Positive descriptors</i>	<i>Negative descriptors</i>	<i>N</i>	<i>Positive descriptors</i>	<i>Negative Descriptors</i>
LAC	<del>21</del>	51.2 (24.4)	20.1 (19.0)	<del>21</del>	54.8 (26.6)	26.1 (16.0)
Control	<del>38</del>	25.8 (12.6)	23.1 (24.3)	<del>40</del>	27.8 (19.3)	21.9 (20.1)

NB: Each cell includes the mean and standard deviation as shown: Mean (SD).

#### 3.34.1. Covariates of ~~R~~recall ~~D~~ata

Pearson's product-moment correlation coefficients did not demonstrate any significant relationships between the demographic variables (group, gender, age and VIQ), and the recall data (positive and negative words) within the neutral mood condition, indicating that these variables did not significantly impact on information processing. The results in Table ~~96~~ reveal a significant relationship between depression severity and the recall of negative words following the neutral mood induction,  $r=.3988$ ,  $n=5960$ ,  $p<.01$ ; this variable was consequently included as a covariate with the ANOVA exploring the negative ~~information~~

processing recall data. Appendix 6.1756 details the correlation coefficients that exist between these variables when the analysis is split by group.

Pearson's product-moment correlation coefficients between the recall and descriptor-endorsement data were also computed: see Appendix 6.1867. This analysis implies poor associations between a high proportion of the variables, this will be considered in section 3.4.2

**Table 6669: Correlations between demographic characteristics of the entire sample and the recall data.**

	Neutral induction (N=5960)		Negative induction (N=60)	
	Positive recall	Negative recall	Positive recall	Negative recall
Age	.0989	-.023	.294*	.0216
Gender	.180	.0879	.090	.1325
VIQ	-.164	.1879	-.190	.033
CDI	.150	.3988**	-.090	.0765

NB: \*Correlation is significant at the  $p < .05$  level.  
\*\* Correlation is significant at the  $p < .01$  level.

### 3.3.2 Relationship to Depression

Following the significant relationship between self-concept and depression symptomatology, it was predicted that depression severity would significantly relate to the recall of negative self-descriptors in the neutral mood condition [H12f], because current depression negatively biases information processing in addition to self-concept. A significant relationship between depression severity and the recall of negative self-descriptors was obtained,  $r = .3988$ ,  $n = 60$ ,  $p < .01$  (see Table 96).

### 3.3.3 Cognitive Vulnerability: Recall Data

Following the analysis of the self-descriptor endorsement data, separate mixed factorial ANOVAs were conducted for both the positive and negative self descriptors [H1d,e]. This was to calculate the main and interaction effects of one between-group factor (group) and one within-group factor (mood induction) on the recall of self-descriptors. Gender was not included as a covariate because it was not observed to significantly impact on incidental recall: see Table 96<sup>1</sup>.

#### 3.3.3.1 Recall of Positive Descriptors

It was predicted that the LAC group would recall significantly fewer positive self-descriptors following the negative mood induction in comparison to the neutral mood condition, an effect which would not be observed within than the control group [H1d]. The coefficients in Table 96 indicated an impact of age on positive self-descriptor recall; therefore age was included as a covariate within this analysis (Table 10 presents the main effects without covarying for age). No significant interaction effect was observed,  $F(1,56)=.001$ ,  $p=.97$ ; so this hypothesis was not supported (see Table 11). See Appendix 6.19 for SPSS output.

**Table 10: Mixed ANOVA for recall of positive self-descriptors by induction and group.**

Source	Df	F	$\eta^2$	p
Induction	1	.52	.009	.47
Induction X Group	1	.098	.002	.76
Error (within groups)	58			

**Table 11: Within-group Mixed ANOVA for recall of positive self-descriptors by induction and group, covarying for age.**

Source	Df	F	$\eta^2$	p
Induction	1	1.6524	.0292	.208
Induction X DepressionAge	1	1.9697	.03417	.1733
Induction X Group	1	.00127	0.005	.9769

<sup>1</sup> Gender was included as a covariate following this initial analysis to explore whether this adjustment had any effect on the results. This was conducted due to the impact of this variable on the endorsement data; however, no significant results were revealed.

<u>Induction X Gender</u>	<u>1</u>	<u>1.88</u>	<u>.033</u>	<u>.18</u>
<u>Induction X Group X Gender</u>	<u>1</u>	<u>.11</u>	<u>.002</u>	<u>.75</u>
<u>Error (within groups)</u>	<u>565</u>			

### 3.3.3.2 Recall of Negative Descriptors

Following on from the previous hypothesis, it was predicted that the LAC group would recall significantly more negative self-descriptors following the negative mood induction, in comparison to the control group [H1e]. Depression score was included as a covariate because this variable was observed to show a significant association with negative word recall in the neutral condition (Table 12 presents the main effects without depression severity as a covariate). A main effect of induction,  $F(1,56)=8.20$ ,  $p<.01$ ,  $\eta^2=.13$ , was observed and depression score significantly moderated the main effect of induction,  $F(1,56)= 7.71$ ,  $p<.01$ ,  $\eta^2=.12$ . However, this hypothesis must be rejected as group status did not significantly moderate the relationship between induction and the recall of negative self-descriptors,  $F(1,56)=1.53$ ,  $p=.22$ ,  $\eta^2=.03$  (see Table 13)27. See Appendix 6.20 for SPSS output.

**Table 12: Mixed ANOVA for recall of negative self-descriptors by induction and group.**

<u>Source</u>	<u>Df</u>	<u>F</u>	<u><math>\eta^2</math></u>	<u>p</u>
<u>Main effect of Induction</u>	<u>1</u>	<u>.34</u>	<u>.006</u>	<u>.56</u>
<u>Induction X Group</u>	<u>1</u>	<u>1.41</u>	<u>.024</u>	<u>.24</u>
<u>Error (within groups)</u>	<u>58</u>			

**Table 13Table 2: Within-groupMixed ANOVA for recall of negative self-descriptors by induction and -group, -andcovarying for depression severity??f.**

<u>Source</u>	<u>Df</u>	<u>F</u>	<u><math>\eta^2</math></u>	<u>p</u>
<u>Induction</u>	<u>1</u>	<u>8.204.21</u>	<u>.13022</u>	<u>.00628</u>
<u>Induction X Depression</u>	<u>1</u>	<u>7.71.97</u>	<u>.12017</u>	<u>.00733</u>
<u>Induction X Group</u>	<u>1</u>	<u>1.53.27</u>	<u>.02705</u>	<u>.2260</u>
<u>Induction X Gender</u>	<u>1</u>	<u>1.88</u>	<u>.033</u>	<u>.18</u>
<u>Induction X Group X Gender</u>	<u>1</u>	<u>.11</u>	<u>.002</u>	<u>.75</u>

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Error (within groups)	565
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Both the results from the correlational analysis (Table 96) and the results from the mixed factorial ANOVAs do not fit with the findings from the endorsement data, as detailed in section 3.2. The low correlations between the endorsement and recall data may partially account for these discrepancies (see Appendix 6.187).

## **3.4 Secondary Hypotheses**

### **3.4.15.1. Group Differences in Psychometric—Data Depressive Symptomatology**

The mean scores for the psychometric measures ~~utilised~~ are detailed in ~~Table Appendix 6.215~~. Independent samples t-tests were conducted to examine the data for significant differences between groups. It was hypothesised that LAC would report higher levels of depression severity than controls [H2a]. However, independent t-tests did not reveal a significant difference in CDI score between the LAC and control group,  $t(59)=-.13$ ,  $p=.90$ .

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### **3.4.2 Relationship between Depression and Response Style**

It was additionally hypothesised that a difference in rumination scores would exist between the two groups [H2b]; this was not confirmed by independent t-tests ( $t(58)=.69$ ,  $p=.49$ ). Pearson's product-moment correlation coefficients were computed to explore the prediction that depression severity would positively correlate with rumination and the response style ratio score [H2c]. The results in Table ~~14876~~ confirm that depression scores do show a significant positive association with rumination ( $r=.57$ ,  $n=60$ ,  $p<.001$ ) and the CRSQ ratio score ( $r=.29$ ,  $n=60$ ,  $p<.05$ ). As predicted, distraction and problem-solving were significantly correlated ( $r=.45$ ,  $n=61$ ,  $p<.001$ ) [H2e]. However, the hypothesis that depression scores would negatively correlate with distraction ( $r=.13$ ,  $n=61$ ,  $p=.34$ ) and problem-solving scores ( $r=.25$ ,  $n=61$ ,  $p=.052$ ) was rejected [H2e], as non-significant associations between these variables were obtained.

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**Table 977: Mean, standard deviation, minimum and maximum scores for all psychometric measures.**

	LAC					Control					All				
	Mean	SD	Min	Max		Mean	SD	Min	Max	N	Mean	SD	Min	Max	
<b>CDI-T-score</b>	50.8	9.8	39	81	40	50.5	7.7	40	66	61	50.6	8.4	39	70	
<b>CRSQ-R*</b>	14.3	9.4	4	35	16.0	9.0	2	34	60	15.4	9.4	4	35		
<b>CRSQ-D*</b>	7.8	3.2	2	24	7.8	4.5	2	24	60	7.8	4.0	2	24		
<b>CRSQ-PS*</b>	6.0	2.4	0	14	5.9	3.5	0	14	60	5.9	3.2	0	14		
<b>CRSQ-Ratio*</b>	1.3	1.5	14	7	1.4	1.1	13	4.9	60	1.4	1.2	109	7.0		
<b>AMT Positive — Specific</b>	3.2	1.5	4	5	3.8	1.3	0	5	61	3.6	1.4	0	5		
<b>AMT Negative — Specific</b>	21	3.6	1.4	4	5	40	4.0	1.3	4	5	61	3.8	1.3	4	5
<b>AMT Positive — Categorical</b>	1.2	1.3	0	4	.82	.98	0	4	61	.95	1.1	0	4		
<b>AMT Negative — Categorical</b>	21	.90	1.2	0	3	40	.50	.99	0	4	61	.64	1.1	0	4
<b>AMT Extended</b>	.90	1.1	0	3	.73	.96	0	3	61	.79	1.0	0	3		
<b>AMT Omitted</b>	.48	.75	0	9	.50	1.5	0	9	61	.49	1.2	0	9		
<b>AMT Repeated</b>	.52	.98	0	3	.40	.67	0	3	61	.44	.79	0	3		



Table 1088144: Correlation coefficients for the relationships between the demographic data, VIQ and psychometric data.

		CDI (N=61)	AMT (N=61)		CRSQ (N=60)			
			Specific	Categoric	Rumination	Distraction	Problem-Solving	Ratio
Age		.2655	.1109	-.0328	.1988	-.033	.1329	.034
Gender		.2438	-.184	.1109	.1600	-.0549	.343**	.0104
VIQ		.053	.4876**	-.3878**	.224	.0546	-.0245	.183
CDI		-	.252	-.1436	.5767**	.1325	.252	.294*
AMT	Specific	.252	-	-.85847**	.204	.230	.0769	.080
	Categoric	-.136		-	-.132	-.152	-.1108	-.0245
CRSQ	Rumination	.567**	.204		-	-.0656	.323*	.6985**
	Distraction	.125	.230		-.056	-	.4545**	-.5329**
	PS	.252	.069	-.108	.323*	.445**	-	-.2657*
	Ratio	.294*	.080	-.045	.685**	.529**	-.257*	-

NB: \*Correlation is significant at the p<.05 level. Key: ♀ = females>males  
\*\* Correlation is significant at the p<.01 level.

Table 154199: Correlation coefficients for the demographic data, VIQ, positive and negative AMT scores and the remaining psychometric data.

		Age (N=61)	Gender (N=61)	VIQ (N=61)	CDI (N=61)	CRSQ (N=60)			
						<i>Rumination</i>	<i>Distraction</i>	<i>Problem-Solving</i>	<i>Ratio</i>
AMT									
Specific	Positive	.22	-.13	.38**	.28*	.22	.09	-.09	.19
	Negative	.09	-.13	.35**	.11	.03	.30*	.24	-.14
Categoric	Positive	-.13	.11	-.34**	-.17	-.17	-.13	-.002	-.13
	Negative	-.06	.08	-.25	-.02	.04	-.13	-.16	.17

NB: \*Correlation is significant at the p<.05 level.  
\*\* Correlation is significant at the p<.01 level.

### 3.4.3 Relationship between Depression and Response Style—: group differences

It was also predicted that the relationship between depression and the response style ratio score will/would be moderated by group [H2ef]. A strong association between rumination and depression severity remaineds when the sample wais split into the LAC ( $r=.59$ ,  $n=21$ ,  $p<.001$ ) and control group ( $r=.56$ ,  $n=39$ ,  $p<.001$ ) (see Appendices 6.22479 and 6.234820). However, the association between depression and the response style ratio score only remaineds significant for the LAC group ( $r=.56$ ,  $n=21$ ,  $p<.001$ ); the relationship is small and non-significant within the control sample ( $r=.05$ 22,  $n=39$ ,  $p=.75$ ). These results give an indication that the combination of high rumination and low distraction/problem-solving is more strongly associated with depression in the LAC group than in the control group.

Table ~~12401016~~: Regression Multiple regression values to model the relationship between depression severity and response style, as moderated by group.

	<i>B</i>	<i>SE B</i>	$\beta$
<b>Step 1</b>			
Constant	-.6 <u>989</u>	.94 <u>2</u>	
CDI T-score	.04 <u>2</u>	.04 <u>28</u>	.294*
Group	-.1 <u>657</u>	.324	-.06 <u>2</u>
<b>Step 2</b>			
Constant	1.0 <u>768</u>	1.2 <u>30</u>	
CDI t-score	.007	.024	.05 <u>0</u>
Group	-4.03-999	1.8 <u>26</u>	-1.6 <u>577</u> *
Group X CDI T-score	.08 <u>76</u>	.04 <u>36</u>	1.6 <u>559</u> *

NB:  $R^2=.088$  For Step 1,  $\Delta R^2=.069$  For Step 2 ( $p<.05$ ).  
\*( $p<.05$ )

This relationship was modelled using a simultaneous multiple regression analysis, to test whether group membership significantly moderates the relationship between depression severity and the response style ratio score (Table 160). Moderation occurs when the relationship between two variables depends on the values of a third. In this case the

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relationship between depressive symptoms and response style will depend on whether the sample is LAC or control. This can be tested using an interaction term in a regression analysis. If the interaction term is significant, it indicates that the relationship between depression severity and the response style ratio score does differ in the LAC and control groups. Depression score and group were entered initially as main effect variables, to observe their contribution to the variance of the dependent variable. The interaction between depression score and group was then entered into the equation, to explore whether this interaction uniquely accounted for a significant portion of additional variance within the model. The main effects of group and depression score (Step 1) approached significance in predicting the response style ratio score,  $F(2,57)=2.8758$ ,  $p=.07$ . However, the interaction between group and depression score uniquely accounted for a significant 6.9% of the variance, indicating that group significantly moderates the relationship between depression score and response style ratio score,  $t(56)=2.135$ ,  $p<.05$ . See Appendix 6.24 for SPSS output. This supports the our hypothesis that the response style ratio score is uniquely associated with depression in high-risk groups (i.e. LAC).

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#### **3.4.4 Relationship between Depression and Autobiographical Memory**

In line with the response style hypotheses, LAC were predicted to demonstrate higher rates of negative categoric memories than controls [H2f]; this was not confirmed by independent t-tests ( $t(59)=-1.4$ ,  $p=.16$ ). Following the hypothesis that the association between categoric memory and depression severity may be confined to responses to negative cue words [H2g], the data was split according to valency (see Table 157). The findings only reveal a significant positive relationship between depression severity and specific memory retrievals to positive cue words,  $r=.28$ ,  $n=61$ ,  $p<.05$ ; a result that is incongruent with the predicted hypothesis. Verbal IQ was significantly associated with both specific and categoric responses to cue words; this is concordant with existing literature. Appendix 6.18 details

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~~the bivariate correlation coefficients that are obtained when these analyses are repeated for the LAC and control group separately.~~

### **3.4.5 Within-Measure Correlations**

The significant associations that exist within the measures (Table 14) illustrate that the measures were properly administered and have retained their internal validity with the samples used; for example there is a negative association between categoric memories and specific memories,  $r = -.85$ ,  $n = 61$ ,  $p < .001$ . Categoric and specific memory also show significant correlations with verbal IQ; an inverse relationship between categoric memory and IQ ( $r = -.38$ ,  $n = 61$ ,  $p < .001$ ) is predicted by existing literature. Results from the literature have demonstrated non-significant relationships between a ruminative and distractive response style during correlation analyses, i.e. both high ruminative and high distractive responses can co-exist within the individual, and vice versa. This was supported by their analysis,  $r = -.06$ ,  $n = 60$ ,  $p = .67$ .

## 4. DISCUSSION

### 4.1. Summary of Main Findings

The aim of the study was to compare the latent self-concept of a group of 'looked after' children (LAC) with the latent self-concept of a control group, using a mood induction procedure. The endorsement of both positive and negative self-descriptors was used as an indicator of self-concept and an incidental recall task was utilised to provide an index of information processing. All participants were administered both a negative and neutral mood induction, in conjunction with a selected battery of psychometric questionnaires (to assess depressed mood, response style and overgeneral memory) and a measure of verbal IQ. The same procedure was also administered to a group of control subjects to examine whether any differences in cognitive vulnerability existed ed between the groups.

#### 4.1.1. Primary Hypotheses

Research has suggested that youths at risk of depression ~~evince-show~~ a drop in positive self-concept following negative mood inductions (Taylor & Ingram, 1999; Woolgar & Tranah, 2010). We therefore predicted that the LAC group would demonstrate a larger drop in positive self-concept in comparison to our control group following the negative mood induction [H1a]. Our results show a marginal non-significant trend in support of this hypothesis: overall, the LAC group showed a ~~significant~~ drop in positive self-concept in the context of a brief and temporary low mood condition, whereas the control group did not. This interaction was moderated by gender. ~~The trend does not reach significance ( $p=.056$ ), despite the study being adequately powered according to a priori statistical analyses.~~

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A collection of studies with other high-risk groups (Taylor & Ingram, 1999; Timbremont & Braet, 2004; Woolgar & Tranah, 2010) have additionally demonstrated an increase in negative self-concept following a negative mood induction, combined with a drop in positive self-concept. It was therefore predicted that LAC would endorse a more negative self-concept when low in mood, whereas controls would not [H1b]. This was not evidenced within the analyses.

In line with previous research (Timbremont & Braet, 2004), it was additionally predicted that LAC would ~~show~~ a drop in positive [H1d] and an increase in negative information processing [H1e] following the negative mood induction. This would manifest via a decrease in positive incidental recall and an increase in negative incidental recall. The analysis of the incidental recall data did not provide any significant results that support the aforementioned hypotheses. Bivariate correlations also illustrated ~~small~~ associations between the self-descriptor endorsement and recall data.

Research has established that manifest depression actively biases self-concept and information processing, because negative self-schemas are activated by low mood states (Teasdale, 1988). Therefore, it was predicted that higher levels of depressed mood would significantly correlate with elevated negative self-concept [H1c] and increased recall of negative self-descriptors [H1f], within the neutral mood condition. Significant bivariate correlations ~~confirmed~~ supported these predictions.

## 4.1.2. Secondary Hypotheses

### ~~4.1.2.1~~ 4.1.2.1. Depressive Symptoms

Prevalence studies report higher rates of depression in the LAC population in comparison to same-aged peers (e.g. McCann et al, 1996, Meltzer et al, 2003a). Consequently, it was

predicted that LAC would report higher levels of depressive symptomatology than controls [H2a]. However, the results indicated that rates of depressive symptomatology did not significantly differ between the two groups.

#### **4.1.2.2. ~~Response~~ Sstyle**

It was also predicted that rates of rumination would be significantly elevated in the LAC group in comparison to controls [H2b], as this variable may confer a risk of depression in high-risk individuals (Kuyken et al, 2006). This was not evidenced in ~~this~~ study; independent t-tests did not indicate that response style scores significantly differed between the groups.

Previous research has demonstrated that a ruminative response style predicts both future and concurrent depression in youth samples (Hilt et al, 2010; Rood et al, 2009; Schwartz & Koenig, 1996). Consequently, it was predicted that depression severity would positively correlate with both rumination and the response style ratio score. Consistent with this hypothesis, strong, positive associations between depressive symptoms and both a ruminative response style and the response style ratio score (i.e. high rumination levels combined with low rates of distraction and problem-solving) were ~~illustrated~~ consistent with our analyses [H2c].

Interestingly, our results did illustrate a unique role for the response style ratio method in predicting concurrent depressive symptoms within at-risk samples [H2e] (Abela et al, 2007; Hilt et al, 2010). Group status was shown to significantly moderate the relationship between the response style ratio score and depressive symptoms. These results illustrate a unique relationship between response style ratio and concurrent depression severity within the LAC group.

Several youth studies have demonstrated that both distraction and problem-solving show negative associations with concurrent and future depression in high-risk samples (e.g. Abela et al, 2007) and the two variables themselves are positively related (Abela et al, 2002; 2004). In response to this literature, we predicted that we would find that distraction and problem-solving are positively related and both variables would show an inverse correlation with depression severity [H2d]. The former hypothesis was supported by our findings; however, this was not the case for the latter. ~~A significant negative correlation between problem-solving/distraction and depression severity was not observed.~~

~~Interestingly, our results did illustrate a unique role for the response style ratio method in predicting concurrent depressive symptoms within at-risk samples (Abela et al, 2007; Hilt et al, 2010). Strong associations between depression severity, rumination and ratio score was evidenced by positive bivariate correlations; indicating that high levels of rumination and high ratio scores (i.e. high rumination levels combined with low rates of distraction and problem-solving) are significantly related to depression severity. Furthermore, this effect only remains for rumination when the sample is split according to group membership; the ratio score specifically correlates with depression scores within the LAC group, this does not extend to the controls. The results illustrate a unique relationship between response style ratio and concurrent depression severity within the LAC group.~~

#### ~~4.1.2.3.~~ ~~Autobiographical Overgeneral Memory~~

In line with research linking increased negative categoric memory to high-risk groups (Kuyken & Dalgleish, 2011), rates of negative categoric memories were predicted to be significantly elevated in the LAC group in comparison to controls [H2f]. ~~However, in the current study the predicted associations between depression symptomatology and negative categoric memory was not supported;~~ independent t-tests did not indicate that the rate of negative categoric memory retrievals significantly differed between LAC and controls.



A selection of youth studies have shown a specific association between categoric memory retrieval to negative cue words and depression severity (Park et al, 2002, 2004; Kuyken & Dalgleish, 2011). It was subsequently hypothesised that depression severity would positively correlate with negative categoric memory [H2g]. This prediction was not confirmed by the results.

## 4.2. Explanations for the findings

Existing youth research provides a mixture of both supportive and contradictory evidence towards a cognitive vulnerability model of depression (Abela & Hankin, 2008). Therefore, it is vital that the current findings are explored in conjunction with the existing literature, in an attempt to highlight key findings and examine discrepancies within the research base.

### 4.2.1. Differential Activation Hypothesis

The concept that negative self-schema are activated by ~~dipe~~ depressed mood is a key premise within the 'differential activation hypothesis' (Teasdale, 1988). ~~This can be assessed within mood induction procedures following the neutral condition~~

Adult and youth studies have consistently published evidence supportive of this central tenet, using both naturally occurring low mood and mood induction procedures (see Scher et al, 2005, and Segal & Ingram, 1994, for a review of the literature). ~~The 'differential activation hypothesis' can be assessed using mood induction procedures by correlating the self-descriptor endorsement data from the neutral condition with a dimensional measure of depressive symptomatology.~~ We therefore hypothesised that depression severity would significantly correlate with negative self-concept and information processing; this was illustrated by a significant, positive relationship between depression scores and the endorsement and recall of negative self schema within the neutral mood condition [H1c,f] (e.g. Kuiper & Derry, 1982; Woolgar & Tranah, 2010).

### 4.2.2. Self-~~C~~oncept

The prediction that the positive self-concept of LAC participants would fall in response to a brief induction of temporary low mood [H1a] was ~~not supported by our data, however partially supported the data, by~~ a marginal non-significant trend ( $p=.056$ ) in the direction of

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~~the hypothesis was observed. Despite the trend not reaching significance, a noteworthy difference was detected that is vital to comment upon in terms of its connection with the literature base and key clinical implications.~~ An increase in negative self-concept in LAC participants was also hypothesised to emerge within the confines of the negative mood induction [H1b]; this prediction was not ~~confirmed by statistical analyses~~supported by the current study.

Overall, the findings provide partial support to various studies within the existing literature. It adds some evidence that mood induction procedures can be successfully applied within youth research (Murray et al, 2001; Taylor & Ingram 1999, Timbremont & Braet, 2004; Woolgar & Tranah, 20~~10~~<sup>99</sup>) and demonstrates that the administration of mood inductions are a somewhata effective method of accessing latent cognitive structures that confer a vulnerability to future depressed mood (Segal & Ingram, 1994). A unique impact on positive self-concept has been highlighted by a collection of preceding studies with young people ranging from 7-17 year olds (Gençöz et al, 2001; Hammen & Zupan, 1984; Prieto et al, 1992). Interestingly, this differential impact on positive self-concept was confined to samples reporting elevated depressive symptomatology, whereas this study demonstrates an emerging difference in those at risk of depression but not currently reporting manifest depressive symptomatology. Taylor & Ingram (1999) presented similar results to the current findings, demonstrating that high-risk children (maternal depression) are less likely to endorse positive adjectives following a negative mood induction than during a neutral mood state; a difference not exhibited by their control group. The results remained significant even when controlling for depressive symptomatology (Taylor & Ingram, 1999). Therefore, this study provides an indication that this phenomenon may hold true with a variety of at-risk populations and age groups.

It is important to emphasise that the current effect was a non-significant trend, ~~and this may in part be explained by recruitment biases; whereby the current LAC sample may reflect a subgroup of the LAC population that is less susceptible to higher levels of cognitive vulnerability due to recruitment biases (see section 5.3).~~ Also, it may be that the profile of risk differs in LAC compared with a) youths in secure care (Woolgar & Tranah, 2010) and b) children at high risk of depression due to maternal depression (Taylor & Ingram, 1999; Murray et al, 2001). ~~It may be that e~~Estimated effect sizes ~~differ may differ~~ from these aforementioned groups due to possible discrepancies in risk profile. This indicates that future LAC research that intends to explore conceptually similar hypotheses should consider recruiting a larger sample size than that predicted by the current power analyses ~~(N>13).~~ ~~Alternatively, the effect may be partially explained by recruitment biases; whereby the current LAC sample may reflect a subgroup of the LAC population that is less susceptible to higher levels of cognitive vulnerability due to recruitment biases (see section 4.4.3).~~

Gender was found to ~~significantly moderate this trend~~be important when analysing the self-concept ~~data in positive self-concept~~. Gender significantly correlated with the endorsement of negative self-descriptors during the neutral mood condition, and a significant relationship was revealed for both valences of self-descriptor during the negative mood condition. ~~Visual inspection of the data suggested that females tended to demonstrate a relatively weaker positive self-concept, and a relatively stronger negative self-concept, than males (see Appendix 6.14).~~ This effect was observed across the entire sample. — These findings suggest that different cognitive vulnerability processes might apply for males and females, an interesting hypothesis which needs to be clarified by further research. Many youth studies examining cognitive reactivity in high-risk groups have either not revealed or not considered a significant association between gender and self-concept (e.g. Kelvin et al, 1999; Prieto et al, 1992; Taylor & Ingram, 1999; Timbremont & Braet, 2004). Thus, these

findings must be considered as preliminary but interestingly support the literature on sex differences in manifest depression (Anderson, Williams, McGee, & Silva, 1987; Essau, Conradt, & Petermann, 2000; Fleming & Offord, 1990; Hankin et al, 1998; Nolen-Hoeksema, Girgus, & Seligman, 1992) and research examining other cognitive risk factors, such as response style (e.g. Broderick, 1998). In light of these results, future studies should be set up to specifically explore the impact of gender on cognitive vulnerability processes in youth samples who are not presenting with marked clinical depression.

A collection of studies with high-risk adolescents have also identified an elevation in negative self-concept following negative mood inductions, whilst controlling for baseline depression scores (Murray et al, 2001; Kelvin et al, 1999; Taylor & Ingram, 1999; Timbremont & Braet, 2004; Woolgar & Tranah, 2010). These studies highlight a latent depressotypic risk that is not confined to samples with manifest low mood, but can be ~~demonstrate~~<sup>evidenced</sup> in at-risk individuals via the use of mood induction procedures. It was hypothesised that a similar phenomenon would be revealed within the current study; i.e. the LAC group would demonstrate an increase in negative self-concept that was confined to the low mood condition and this effect would not be observed within the control sample [H1b]. However, this interaction was not elicited from the analyses, resulting in findings that are inconsistent with the previous literature. ~~These discrepancies may again be explained by recruitment biases or a difference in risk profiles between certain groups (e.g. LAC vs. individuals in secure care). In addition to this~~ These discrepancies, may be explained by specific risk factors operating in different groups of vulnerable youths. Woolgar & Tranah (2010) identified suicidal ideation as a variable that specifically moderated the relationship between mood and negative self-concept in a group of very high-risk youths (secure care); this variable was not considered within the current study and it would be useful to examine how suicidal ideation influences cognitive vulnerability ~~with other high-risk groups in the LAC population and with other groups of high-risk youths.~~ Recruitment biases may again be partly responsible for the findings obtained.

### 4.2.3. Information Processing

Conceptually similar hypotheses to those discussed above predicted that LAC would show reduced processing of positive information and a bias towards negative information processing following a negative mood induction [H1d,e]. These hypotheses were not supported by the current findings. Explanations for these null results will be considered.

~~The incidental recall paradigm was included in the current study following previous literature that highlights the impact that induced negative-low mood has been shown to influence has can have on information processing the processing of information using the incidental recall paradigm (Gençöz et al, 2001; Hammen & Zupan, 1984; Prieto et al, 1992; Timbremont & Braet, 2004). It was predicted that the LAC group would show weaker. For example, never-depressed children in Timbremont & Braet's (2004) study showed more robust positive information processing in response to a negative mood induction than the remitted and currently depressed control group (Timbremont & Braet, 2004), and these latter groups did not evidence significant differences between the number of positive and negative self-descriptors they recalled following the induction procedure. This effect was not observed within the current study; non-significant trends within the data actually point towards an increase in positive self-concept following the negative mood induction for both the LAC and control group. Neither did the data support the hypothesis that the LAC group would recall a higher number of negative self-descriptors following the negative mood condition than the control group; despite several youth studies with high-risk populations demonstrating this negative bias (e.g. Kelvin et al, 1999; Taylor & Ingram, 1999; Timbremont & Braet, 2004). These findings were not observed within the current study. In contrast to the existing literature, Woolgar & Tranah (201009) used exactly the same procedure as featured in the current study (SRET: Self Referent Encoding Task) and also found that their hypotheses were not supported by their incidental recall data; however, they attributed~~

this finding to floor effects. This was not the case in this study as sufficient variance was observed within the recall data.

~~It may be instead that t~~The use of remitted and depressed youths in ~~previous-these~~ studies (Gençöz et al, 2001; Hammen & Zupan, 1984; Prieto et al, 1992; Timbremont & Braet, 2004) ~~may-be~~ is a vital factor in explaining the discrepancies between ~~prior-existing~~ literature and the current findings. Remitted-depressed subjects are a high-risk group that is often employed in studies examining the cognitive vulnerability phenomenon. A different mechanism of risk may operate to confer cognitive vulnerability to future depressed mood in remitted-depressed children in comparison to the non-depressed LAC population. It may be that biases in information processing may be not be consolidated in the LAC population and operate at a much more robust level in the remitted population; clinical depression may erode resiliency factors that may still be active in never-depressed high-risk groups (scar hypothesis). Following this theory, the marginal non-significant trend [ $p=.056$ ] obtained for the endorsement data may indicate that LAC show some level of risk but not to the same extent that remitted groups do, due to the absence of a history of clinical depression; they may be more accurately defined as a group at 'moderate-risk' group of future depression.

In addition, children of depressed parents (e.g. Taylor & Ingram, 1999) have been explicitly exposed to a negative information processing style, whereas this is not uniformly the case with regards to the LAC population. Other life events that LAC are characteristically exposed to, such as ~~abusive~~ maltreatment and neglect, may confer a specific vulnerability to low, positive self-concept but may not directly influence information processing. Further studies should focus on the mechanisms of risk that are specific to different high-risk populations in an attempt to test the explanations offered. In conjunction with the current results, the accumulated literature has not provided consistent results regarding the relationship between information processing indices of self-concept and cognitive vulnerability in youth populations at high risk of future depressed mood. However,

inconsistencies exist between the current self-descriptor endorsement and recall data that cannot be accounted for, and further studies using the SRET methodology with the LAC population may aid our understanding of the unexpected findings obtained. ~~Overall, it is unclear why the incidental recall data did not provide the expected findings.~~

#### 4.2.4. Concurrent Depressive Symptoms

Prevalence studies indicate that youth in the care system are more likely to experience clinically significant depression (McCann et al, 1996; Meltzer et al, 2003) and sub-clinical emotional problems (Meltzer et al, 2003) than the general population. A current or recent history of depression was included as an exclusion criterion for the current sample, to examine latent mechanisms of risk that are specific to LAC but not present due to scarring from previous depressive episodes. It was consequently predicted that LAC would demonstrate significantly elevated rates of depressive symptomatology in comparison to controls [H2a], because findings from prevalence research suggest that not all mental health problems that manifest within the LAC population are detected by health services (Dimigen, et al, 1999; McCann, et al, 1996), and Meltzer et al (2003a) emphasised that 43% of their diagnosis-free sample was reported to be expressing subclinical emotional and behavioural problems. ~~Significant differences in depressive symptoms may exist without cases meeting criteria for a clinically significant depressive episode. However, this hypothesis was not supported by the data, indicating that levels of depression severity were equal across the groups. Recruitment biases may explain these findings; the current LAC group may represent a subgroup of this population who are experiencing lower rates of subclinical depressive symptoms, in comparison to the LAC population in general (Meltzer et al, 2003a).~~

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#### 4.2.5- Response Style

Numerous youth studies have identified a strong association between concurrent depressive symptoms and a ruminative response style in non-clinical samples (e.g. Abela et al, 2007; Hilt et al, 2010; Rood et al, 2009; Schwartz & Koenig, 1996). The current findings add further support to this phenomenon and highlight the role of the ratio method in predicting depression severity in high-risk groups in particular [\[H2c.e\]](#) (Abela et al, 2007; Hilt et al, 2010).

~~C~~Conversely, the [predicted](#) association between distraction, problem-solving and depression severity was not supported [\[H2d\]](#). Research has illustrated a negative relationship between depression severity and these two adaptive response styles within non-clinical groups (e.g. Abela et al, 2007; Hilt et al, 2010; Schwartz & Koenig, 1996). However, it is noted that only a selected number of studies have evidenced these findings and a meta-analysis demonstrated that effects only remained stable for rumination once results were pooled (Rood et al, 2009); thus the literature base for these response styles remains weak.

It was predicted that the LAC group would demonstrate higher rates of ~~a~~ ruminative responses ~~s~~ ~~-style~~ than controls [\[H2b\]](#); which would confer an increased risk of future, manifest depression according to preceding literature (Kuyken et al, 2006). For example, Kuyken and colleagues (2006) demonstrated that their high-risk group (differentiated in terms of neuroticism) reported higher levels of rumination than the ~~ir~~ control group, independent of depression severity. However, our findings did not support this hypothesis; rates of rumination did not differ significantly between the two groups. When considering this discrepancy in findings, it is acknowledged that the literature base with 'high-risk' groups remains small, thus more research on such populations could provide more clarity using parallel hypotheses. In addition, Kuyken and colleagues (2006) have introduced another ~~different~~ ~~-~~measure of risk based on a measure of neuroticism; this variable was not

considered when recruiting the current sample and may highlight another ~~set of specific~~ risk mechanisms that ~~were not operating within~~ is not playing a significant role within the current sample.

#### **4.2.6. ~~Overgeneral~~ Overgeneral Memory**

The current hypotheses proposed that categoric memory to negative cues would positively correlate with depression severity [H2g], and these responses would also be more common in the LAC as opposed to the control group [H2f], reflecting an underlying risk for depression in the LAC group. Neither of these hypotheses ~~was~~ supported by the current results, explanations for this finding will be explored.

Youth research on overgeneral memory in depressed mood has often been confined to clinically depressed samples (e.g. Kuyken & Howell, 2006; Kuyken et al, 2006; Park et al, 2002, 2004; Swales et al, 2001). A number of these studies have revealed a significant relationship between depressed mood and categoric memory that is specific to negative cue words (e.g. Park et al, 2002, 2004). Explanations for these ~~se~~ discrepancies between previous literature and the current findings may centre on the absence of marked depression within the current sample. It may be that overgeneral memory is elevated in individuals experiencing marked levels of depression, but is not sufficiently elevated in samples whom are not currently depressed (Park et al, 2004), even if a dimensional measure of depression is used ~~(Park et al, 2004)~~. Rumination was observed to impact on mood and memory retrieval in depressed adolescents participating in Park and colleagues' (2004) study; however, this finding was not replicated with their non-depressed group, i.e. rumination impacted on mood alone.

Kuyken & Dalgeish (2011) replicated similar findings with a sample of non-clinical youths, whereby a high risk of depression was defined in terms of higher scores on a neuroticism

scale. Their findings suggested that depression mediated a positive correlation between neuroticism and categoric memory retrieval to negative cue words. A parallel study was simultaneously conducted with adolescents with a history of depression, to illustrate that categoric memories were more common in this remitted-group than a group of never-depressed youths. When considering this finding (Kuyken and Dalgleish, 2011), it is noted that the relationship between neuroticism and negative categoric memory retrieval was largely mediated by depression severity (Kuyken & Dalgleish, 2011). This ~~implicates-implies~~ state depressed mood (as measured by the Beck Depression Inventory II: Beck, Steer & Brown, 1996) as the context in which categoric memory retrieval to negative cues will be inflated in at-risk individuals. In addition to this, the authors admitted that they did not establish whether their high-neuroticism group had a history of depression and their second group consisted of remitted-depressed adolescents. These results may thus reflect a lingering tendency for remitted youths with a history of depression to retrieve overgeneral memories following previous episodes of MDD (scar hypothesis).

~~Unfortunately, data collection limitations that operated within the current study resulted in a lack of information on the previous psychiatric history of the current sample. Lastly, depression measures employed within youth studies are different from the one utilised in the current study; further research should determine which psychometric measures consistently correlate with OGM data.~~

In addition to the above findings, an inverse correlation with verbal IQ was demonstrated by the current analysis; ~~this suggests that the data obtained was valid as~~ this finding is observed throughout the previous literature (e.g. Park et al, 2002; Phillips & Williams, 1997), supporting the theory that overgenerality is more common in individuals who report reduced cognitive resources.

#### 4.2.7 Summary

In summary, reflection on previous literature highlights that different mechanisms of risk may specify varying levels of cognitive vulnerability to depression. Suicidality may be a specific risk factor that is very important to consider with particularly high-risk populations, such as those in secure care (Woolgar & Tranah, 2010), and negative categoric memory may be confined to individuals with a history of depressed mood. LAC may be better defined as a 'moderate-risk' group in comparison to youths with depressed mothers, high in neuroticism, remitted-depressed or in secure care. Prospective studies would clarify whether certain risk factors convey a vulnerability to depression in particular or whether they may convey a risk for more transdiagnostic problems. Alternatively, it may also be that recruitment biases played a role in sampling a group of LAC at lower risk of future psychiatric problems than the general LAC population. Further studies that look at combinations of these risk factors in LAC samples will help to confirm the key mechanisms that build the typical profiles of risk observed in this vulnerable population.

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## 4.33. Strengths of the Study

The current study is relatively unique in terms of the population focused on. Very little experimental research has been carried out with youths under the care of local authorities considering the high level of need that this group possesses, and this is often related to the reality that LAC are a notoriously difficult population to gain access to for research purposes (Butler & Williamson, 1994; Thomas & O’Kane, 1998). LAC are ~~a high-risk group~~ particularly in terms of vulnerability to depression and other psychiatric problems, yet no research, to the author’s knowledge, could be found that considers latent, cognitive risk factors with this particular population. The current study explores both latent risk factors of depression and ~~the manifest aspects of cognition~~ cognitive processes that are established correlates with low mood.

The experimental and empirical nature of this study is also a notable strength. New and emerging evidence-based methodology (SRET) was utilised to investigate the impact of low mood on multiple cognitive processes. The SRET data was combined with psychometric information and used within a case comparison design to elicit specific conclusions about cognitive vulnerability processes. Recent research with high-risk youths was integral in determining which cognitive mechanisms would be most useful to examine when exploring cognitive vulnerabilities in a LAC group. These mechanisms were considered in terms of their relationship to depressed mood and how they manifest within a vulnerable group who are not currently expressing manifest symptoms of depression.

Lastly, it is important to note that the study did accrue a satisfactory number of LAC participants to ensure that the study had sufficient power to explore the primary hypotheses. The power analysis was calculated according to effect sizes reported within the previous literature (Gençöz et al, 2001; Taylor & Ingram, 1999).

## 4.4. Limitations of the Study

In addition to the strengths previously noted, a collection of caveats must be considered in order to best understand the limitations of the study and reflect upon the areas which may be improved upon in future research.

### 4.4.1. ~~Historical Information~~

~~The major limitation with this study is the lack of historical psychiatric information. Scher et al (2005) emphasised the need for data that differentiates between onset, relapse and recurrence of depression, in order to specify exactly what cognitive vulnerability processes~~

~~are predicting in terms of the course of depression. A lifetime structured clinical interview, such as the Schedule for Affective Disorders and Schizophrenia for School-Age Children—Present and Lifetime version (K-SADS-PL; Kaufman et al, 1997), would be required to collect accurate data on psychiatric history; this was not within the remit of the current study. The literature base emphasises the value that this type of information holds when making inferences from the findings obtained (Park et al, 2002; Scher et al, 2005), therefore the caution must be exercised when interpreting the current results and care taken when generalising the results to different subgroups of the LAC population. Data on psychiatric history and contact with mental health services would be essential for further research within this area.~~

#### **4.4.1 Sample Size and Power**

Based on statistical calculations, a minimum of 13 participants was needed in each group in order to satisfy power criteria for the primary hypotheses, based on the likelihood of detecting a large effect size as indicated by previous studies (Gençöz et al, 2001; Taylor & Ingram, 1999). Despite this criteria being met, the LAC sample size is still relatively modest and further recruitment into this particular group would have resulted in the study obtaining adequate power for the autobiographical memory hypotheses (40 participants were required for each group); increasing the possibility that results supportive of these hypotheses would have been revealed. Additionally, if LAC do represent a moderate (rather than high) risk population, then the current power analyses would have been attenuated by this different profile of risk (e.g. LAC versus remitted depression, maternal depression, secure care, high neuroticism).

In addition, the possibility exists that the mood induction may not have been strong enough to elicit the predicted effects. A statistically significant dip in mood was demonstrated, however, this may not equate to a clinically significant change in mood state. The mood

induction music was chosen according to previous studies which had successfully induced a significant dip in mood in young people (Kelvin et al, 1999; Woolgar & Tranah, 2010). However, several of the young people interviewed did note that more current music would have had a more dramatic impact on their mood state, as certain pieces of music already have established associations with low mood for them. This feedback infers that more ecologically valid music may be useful to trial in future mood induction studies with young people.

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It is acknowledged that the approach to the statistical analysis of the SRET data can be considered relatively conservative, especially when considering the modest sample size. The inclusion of a range of covariates can limit the likelihood of finding a significant effect. However, the main effects from the repeated measure ANOVAs for this data, ran prior to the inclusion of the covariates, did not highlight significant effects within these analyses. Following this, the covariates were chosen due to the results of previous correlational analyses, indicating that certain variables, such as gender, were significantly associated with the SRET data.

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#### **4.4.2 Recruitment**

A major task that arises when recruiting participants from the care system is the navigation of this system and liaising with social workers to obtain referrals for the study (Heptinstall, 2000; Butler & Williamson, 1994). ~~As aforementioned, it~~ is possible that the current LAC sample reflects a particular subsample of the LAC population who possess a lower threshold for developing depressive symptoms in response to stressful events (Abela & Hankin, 2008; Hankin et al, 2005), due to requesting those without current frank depression. Social workers also excluded several young people that they deemed too chaotic to take part on an



ad hoc basis. These actions are obviously conscientious on the part of the social worker but unfortunately eliminated the opportunity for certain youths to participate and consequently unsystematically impacted upon the characteristics of the sample ascertained; this excluded subpopulation may have possessed higher levels of cognitive vulnerability than the current sample.

~~Lastly, the difference in ethnic composition of the two groups appears worthy to comment on according to visual inspection. Formal assessment of the difference in ethnic composition was not conducted due to the variety of ethnic categories involved, but a considerable difference in the composition of the groups is apparent; e.g. an unusually small proportion (4.7%) of participants in the LAC group described themselves as White British in comparison to the control group (43.9%). Great lengths were taken to try and recruit as many controls as possible that possess a similar demographic background to the LAC group, however, a subsample of the control group were recruited via email in an attempt to recruit a sufficient number of subjects in the limited time frame available. This highlights the pressures of recruiting appropriate, yet sizeable samples within a limited time frame, as more time and resources would allow for a better matched control sample; it is important that this issue of ethnicity and cultural diversity is carefully considered within future research.~~

#### **4.4.3 Additional Measures**

The screening measure used to detect depressive symptoms in the sample (CDI) was chosen due to the strong psychometric and predictive properties reported within the literature (e.g. Kovacs, 1992; Timbremont, Braet, & Dreessen, 2004), and the repeated use of this measure in relevant youth literature (e.g. Abela et al, 2006; Hilt et al, 2010; Taylor & Ingram, 1999; Timbremont & Braet, 2004; Woolgar & Tranah, 2010). However, it is

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acknowledged that this measure is open to a degree of self-report bias. Future studies in this area may want to add supplementary informant-report measures to provide information on the participant's depressive symptomatology from the perspective of the carer.

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Furthermore, in light of the literature that highlights an important role of previous depression in conferring specific vulnerabilities to low mood (e.g. Kuyken & Dalgleish, 2011), it is acknowledged that information on the psychiatric history of the current sample may have been useful to obtain to refine the risk profiles of the LAC group. A lifetime structured clinical interview, such as the Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime version (K-SADS-PL; Kaufman et al, 1997), would be required to collect accurate data on psychiatric history. The use of historical information in experimental studies such as the one presented could help to refine the risk profile of different subgroups that are likely to exist within the LAC population, in terms of their vulnerability to future depressed mood via specific mechanisms of risk (such as neuroticism, e.g. previous depressive episode).

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## 4.5 Implications for Future Research

Despite the limitations outlined, this research has provided valuable headway into the study of cognitive risk in the 'Looked After' population. ~~A minor suggestion of risk was revealed in the LAC group, according to a non-significant drop in positive self-concept following the negative mood condition. The LAC population may also represent a particular group that possesses a moderate risk of future depression, this would partially explain the discrepancies between the current findings and previous results obtained with high risk groups and qualitatively different risk profiles (e.g. Woolgar & Tranah, 2010; Taylor & Ingram, 1999; Timbremont & Braet, 2004). The response style ratio method was also observed to uniquely predict depressive symptoms in our LAC group; supporting research that demonstrates an exclusive association between the ratio method and at-risk groups (Abela et al, 2007; Hilt et al, 2010).~~

An array of research options exist that would extend the findings of this study, including the inclusion of other variables ~~in order to examine the relationship between how certain risk factors impact upon~~ cognitive vulnerability processes ~~and other specific social and psychological factors, in addition to an~~ and extension of the study design.

### 4.5.1 Risk Factors

Research has highlighted particular variables that are believed to put LAC at risk of developing mental health problems, including parental psychiatric ill health and substance use, maltreatment, placement stability and age upon entering the care system (Chernoff et al, 1994; Department for Children, Schools and Families, 2009; Oswald et al, 2010). Following the suggestions that diverse risk profiles may manifest differently within research studies, more detailed research that explicitly compares risk factors could provide targeted

findings on which particular aspects of being in care specifically confer this latent risk for future psychiatric problems. The depression literature has identified variables that are believed to predict later depressed mood (e.g. Reinherz, Paradis, Giaconia, Stashwick & Fitzmaurice, 2003). ~~S-~~studying these factors with this particular population within a cognitive vulnerability framework will further our understanding of how mechanisms of risk operates in groups of at-risk youths.

Differences in cognitive vulnerability rates may be revealed when comparing subgroups of the LAC population. For example, cognitive vulnerability rates may increase as individuals are exposed to a higher rate of negative life events, or some events may hold particular weight for the development of this latent risk. Many young people cannot easily recall details from their early childhood and current caretakers are not always aware of all the relevant historical information (Oswald et al, 2010). ~~P,-whereas-~~prospective studies would be able to provide a structure for tracking cognitive vulnerability processes at pre-determined follow up points, whilst simultaneously recording the important life events that each individual encounters. This discussion section has already acknowledged multiple cognitive variables that have been highlighted as important mechanisms of depressotypic risk (such as rumination, neuroticism and suicidality). These investigations would also provide more information on the particular variables that confer a selective risk for depression or potentially those that are more transdiagnostic in nature; does a drop in positive self-concept in response to low mood impart a specific risk for depression or represent a more transdiagnostic vulnerability, such as low self-esteem?

Woolgar & Tranah (2010) also highlighted evidence that youths from an ethnic minority background may show a particular vulnerability to a relative increase in negative self-concept following the negative mood induction. There was a visible difference in the ethnic composition of the LAC and the control group within the current study, as an unusually small proportion of the LAC group described themselves as white (4.7%) in comparison to the

control group (43.9%). The LAC population of South East London are known to contain unusually small numbers of youths who do not belong to Black and Ethnic Minority (BME) groups, in comparison to the wider LAC population; the Department for Children, Schools and Families (2009) established that approximately 76% of the 'Looked After' population were reported to be white. Therefore, in order to make comparisons on ethnicity, we would have had to oversample the local BME population to obtain a control sample that more closely reflected the ethnic composition of the LAC group. The issue of defining ethnicity is also a complex one, as 'ethnicity' reflects much more than race or background, and various aspects of differing cultures may impact on cognitive vulnerability rates in a way that cannot be captured by pre-assigned/determined ethnic categories of ethnicity. Although, ethnicity was not explicitly drawn out within Woolgar & Tranah's (2010) hypotheses as a particular predictor of cognitive vulnerability rates, they provide preliminary evidence that highlights ethnicity and culture as key concepts to explore within a cognitive vulnerability framework. so-future research would need to specifically set up hypotheses to explore the role of ethnicity within the cognitive vulnerability model. This may reveal that distinct ethnic and cultural subgroups exist within the LAC population who are at particular risk of mental ill health.

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Overall, research that considers these suggestions would allow researchers to gain a better understanding of the differential impact that certain risk factors have on cognitive vulnerability, and provide more insight into the particular subgroups of LAC that will require extra support and targeted interventions as they enter the care system.

#### **4.5.2 Resilience**

Rutter (1997) describes an interactional relationship between risk and protective factors that which predicts the level of resilience that youths show in response to stressful life events.

As Teasdale (1988) emphasised, different individuals may experience exactly the same negative life events, but their idiosyncratic levels of cognitive vulnerability will determine how they respond to dips in mood, i.e. whether they recover quickly or enter into a more chronic and entrenched state of depressed mood. Jackson & Martin (1998) note that young people in care are particularly likely to experience a preponderance of these risk factors, and strong restorative protective factors would be needed to restore this balance of risk and resilience. Therefore, the influence that protective factors have on self-concept and cognitive vulnerability are important to consider. Increasing resilience via positive self-concept appears a worthwhile consideration in response to the current findings (Gençöz et al, 2001). In addition to this, other mechanisms involved in building resilience against future psychiatric problems need to be researched. Abela and colleagues (Abela & Skitch, 2007; Abela & Sullivan, 2003) consider the role of self-esteem within the cognitive vulnerability model. Abela & Sullivan (2003) found that self-esteem moderated the relationship between dysfunctional attitudes and the impact of negative life events on depressive reactions in a sample of non-clinical seventh graders. A further study used hierarchical linear modelling analyses to show that high levels of self-esteem buffer against the impact of stressful events on depressive symptoms in individuals with high levels of dysfunctional assumptions (Abela & Skitch, 2007). Research should be conducted using measures of self-esteem, such as the Self Esteem Questionnaire (SEQ: Rosenberg, 1965), to explore the impact of this variable on buffering against drops in positive self-concept within LAC groups.

Cognitive vulnerability may be an important mediating variable between external protective factors and resilience. For example, research has emphasised the protective impact that positive adult role models have on fostering resilience (Jackson & Martin, 1998; Maluccio, Abramczyk & Thomlison, 1996), a finding that lends itself to attachment research. Beck and colleagues (1963, 1967, 1979) and Bowlby (1969) have proposed similar ideas regarding cognitive representations of earlier experiences and Scher et al (2005) highlight how the quality of the attachment relationship is “fertile ground” (pp. 505) for the development of

schemas integral to models of cognitive vulnerability. A significant proportion of literature on LAC refers to attachment quality and related disorders; young people in the care system have often been exposed to weak and broken attachments (~~Aldgate & Jones, 2006; Howe & Fearnely, 2003~~) and thus themselves experience problems developing and maintaining secure attachments (Millward, Kennedy, Towlson & Minnis, 2006). Scher et al (2005) provide a review on the current research linking the cognitive vulnerability hypotheses and attachment model, emphasising the need for research on the precise parenting behaviours and maltreatment experiences that lead to increased susceptibility to cognitive vulnerability.

Research can isolate particular mechanisms that encourage the elaboration of a positive self-concept and consequently encourage resilience against the type of negative life events that LAC characteristically encounter. Such work is essential to the development of successful interventions which can protect against future psychiatric problems, including parenting-based interventions such as the Fostering Changes Programme (Pallett, Scott, Blackeby, Yule, & Weissman, 2002; Warman, Pallett, & Scott, 2006); which was initially developed to support foster carers to manage challenging behaviour and avoid disruptions to placements.

## **4.6 Clinical Implications**

Reflection on the findings offers a multitude of implications for clinical work with young people in the care system, care-leavers and ~~other other high-risk~~ groups of youths that are susceptible to higher rates of cognitive vulnerability. The research base for cognitive interventions with certain youth populations remains in its infancy, yet existing evidence, in conjunction with the current findings, still yields incredibly important implications for future research trials and clinical applications.

### **4.6.1 Screening Instruments**

Results demonstrated that the LAC group were not reporting significantly higher depressive symptomatology than controls. However, weak effects for latent risk were observed in the form of a marginally non-significant trend illustrating a reduction in positive self concept during temporarily, induced low mood. In conjunction, these findings suggest that traditional screening instruments for depression may not accurately detect latent risk present within the LAC population.

Identifying young people at risk of developing psychiatric problems is imperative in order to prevent distress and ill-health (Kuyken et al, 2006; McAuley & Davis, 2009; McCann et al, 1996). Goodman, ~~Ford, Cobin and Meltzer~~ ~~and colleagues~~ (2004) have emphasised the potential value of screening young people within the care system for mental health, behavioural and attentional problems. They used the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) to demonstrate that screening procedures can help to improve the detection of emotional, behavioural and concentration problems amongst 'Looked After' young people. They noted that these procedures should be rigorously evaluated and trialled before integration into routine care. Segal & Ingram (1994) stress the



importance of priming individuals prior to cognitive assessment with mood induction procedures in order to accurately detect underlying, depressotypic risk. —The current study demonstrates that a drop in positive self-concept may be the marker of risk that clinicians need to be aware of during psychiatric assessments. However, the SRET methodology is too complicated to use within routine clinical practice. However, the finding was weak and preliminary; therefore further research is necessary to define the specific markers that which carry a higher level of risk in the LAC population (e.g. maternal depression, neuroticism and suicidality, certain ethnic backgrounds) and can be assessed via the use of questionnaire methodology. The current study adds evidence to the premise that the response style ratio score may be a useful tool in detecting depressotypic risk in at-risk populations; longitudinal research would confirm whether this marker does in fact lead to future psychiatric problems in LAC. and larger samples may reveal a more robust finding if this marker is uniquely useful in detecting those with moderate risk profiles. Longitudinal research would also confirm whether this marker does in fact lead to future mental ill health.

These findings form initial steps into the theoretical development of screening procedures that may capture a latent risk for future mental ill health that is not otherwise detected via traditional psychiatric and psychometric screening measures.

#### **4.6.2 Psychological Intervention**

The minor decrease in positive self-concept and the unique role of the response style ratio in predicting depressive symptoms in the LAC group present important implications for psychological interventions with youths in the care system. There has been a call for investigations into the value of different therapeutic interventions with this vulnerable group and what may protect these young people from developing mental health problems (Mental Health Foundation, 2002).

#### **4.6.2.1 Positive Self-Concept**

The current study showed that positive self-concept within the LAC group was relatively sensitive to the induction of transient low mood. The identification and operationalisation of mechanisms that confer risk, such as a drop in self-concept in response to low mood states, allows researchers to determine which variables should be targeted in order to develop the most successful psychological treatment and prevention strategies (Greenberg et al, 2001; Timbremont & Braet, 2004). Weisz, McCarty, & Valeri (2006) provided a meta-analysis of the effectiveness of psychotherapy for depression in youths and revealed that treatments for depression are generally inferior to those developed for other psychiatric disorders.

There is a paucity of research on the usefulness of CBT with children exposed to long-standing adverse life events (Vostanis, 2003a), although CBT has been shown to be effective with children experiencing Post-traumatic Stress Disorder (Smith, et al., 2007; Vostanis, 2003b) and sexual abuse (Cohen, Mannarino, & Knudsen, 2005). Thus, further studies assessing cognitive vulnerability in youth populations have been recommended to add to the growing literature ~~on~~<sup>into</sup> CBT for children and adolescents (Lewinsohn, Clarke, Hops, & Andrews, 1990). Gençöz and colleagues (2001) wondered whether therapeutic approaches ~~should~~ that specifically focus on the elaboration of positive self-schemas would be useful with the depressed youth population. In addition to this, Abela and colleagues (Abela & Skitch, 2007; Abela & Sullivan, 2003) highlighted the moderating function of self-esteem in cognitive vulnerability processes. These ideas fall in line with the current hypotheses regarding positive self-concept; ~~as one avenue to approach, however, only weak evidence was provided by this study that supports these assertions.~~

#### **4.6.2.2 Response Style**

The current findings reveal a significant association between rumination and depression severity, which adds support to the ever-growing literature on psychological interventions

that focus on the reduction of rumination in order to improve mood and prevent depressive relapse (e.g. Broderick, 2005; Papageorgiou & Wells, 2000; Segal et al, 2002; Teasdale et al, 1995; Watkins et al, 2007; Wilkinson & Goodyer, 2008). Rood and colleagues (2009) emphasise that methods aimed at reducing rumination and depressive symptoms in the adult population may prove successful when applied to younger individuals.

~~Adult interventions that reduce rumination have shown promising results, e.g. Rumination-Focused CBT, Attention Training and Mindfulness-Based Cognitive Therapy. Traditional CBT has demonstrated a significant impact on the reduction of ruminative brooding in depressed youths (Wilkinson & Goodyer, 2008) which has important implications for relapse prevention. However, the CBT condition did not significantly lower depression scores over and above the non-CBT control comparison at follow up. Following this, Rumination-Focused CBT (Papageorgiou & Wells, 2000; Segal et al, 2002; Teasdale et al, 1995; RF-CBT: Watkins et al, 2007) capitalises on research that has highlighted the role rumination plays in the onset and persistence of depressive symptoms and noteworthy, preliminary results were revealed following the treatment of medication-refractory residual depression in adults. Attention Training is another rumination-specific intervention that has obtained promising results with adults (Papageorgiou & Wells, 2000). The key concept of MBCT (Segal et al, 2002; Teasdale et al, 1995) the need for attention to the present moment also leads to the reduction of rumination by encouraging clients to disengage from their maladaptive cognitive processes. Broderick (2005) provided preliminary evidence in favour of mindfulness approaches, demonstrating that they were more effective than distraction in reducing depressive symptomatology in undergraduate students. However, future research needs to extend these studies to incorporate treatment trials with children and adolescents (Broderick & Korteland, 2004). The current results also highlight a role for improving distraction and problem-solving in conjunction with reducing ruminative processes to prevent and/or reduce depressive symptoms in high-risk populations. Therefore, Aa multi-faceted approach may offer more successful results than targeting any of the response styles alone.~~

#### **4.6.2.3 Preventative Interventions**

A task more pertinent to this study is considering what interventions may be useful with at-risk populations to prevent future depression by increasing resilience and lowering risk. The Fostering Changes Programme (Pallett et al, 2002; Warman et al, 2006) illustrates the effectiveness of educating foster carers in psychological intervention to increase the well-being of the child and the surrounding systems-around that child. Foster carers and social workers are well-placed to disseminate psychologically-informed activities, e.g. mindfulness practices and problem-solving skills, to LAC; in order to reduce rumination and increase adaptive coping mechanisms. It may also be useful to consider training front-line workers in activities that focus on bolstering self-concept, with each intervention aiming to increase resilience and reduce risk.

## 4.7 Conclusions

Despite widespread knowledge that LAC are a particular group of young people vulnerable to mental health problems, limited cognitive research is carried out with this population to identify mechanisms which confer this risk. It is sadly well-known that the extensive mental health needs of LAC remain largely unmet (e.g. Richardson & Joughin, 2000). The Mental Health Foundation (1999) have highlighted the lack of support that the LAC population often face with regards to their mental health problems. ~~The - and that the~~ failure to identify and acknowledge mental health problems in young people may lead to serious problems for those individuals (Lindsey, 2000). Early identification of risk factors, such as cognitive vulnerability to depression, can enable that young person to seek help and target risk factors early on in order to prevent later difficulties (Kuyken et al, 2006; Scher et al, 2005).

The current findings present partial support that LAC may possess latent cognitive vulnerability, ~~indicating that~~ whereby exposure to low mood ~~suggested~~ ~~was followed by a~~ weak tendency to ~~a~~ drop in positive self-concept ~~in the LAC group~~, a phenomenon that was not present in controls. This has potential clinical implications for the use of preventative interventions which encourage the elaboration of positive self-schema in high-risk youths, in order to weaken cognitive vulnerability mechanisms that would otherwise confer an underlying, depressotypic risk. Findings were also obtained that illustrated a significant relationship between manifest depressive symptomatology and a negative self-concept and information processing bias, although ~~the LAC group individuals without clinical depression~~ ~~dedid~~ not report significantly higher rates of sub-clinical depressive symptoms than controls. The findings also highlight that rumination was associated with depressive symptoms across the sample, whereas the response style ratio method uniquely predicted ~~eds~~ depressive symptoms in the LAC group. This suggests that the ratio method has an important role for

predicting the severity of depressive symptoms in high-risk youth populations, it is important to identify response style risk factors in vulnerable individuals and develop interventions which target these processes. Future research will be ~~imperative~~ helpful in consolidating the explanations offered and providing different frameworks for mapping the course of depression and cognitive vulnerability processes in LAC and other vulnerable groups.

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## **6. APPENDIX**

### **6.1 Information and consent sheets for 'Looked After' young people.**

**Institute of Psychiatry**  
at the Maudsley



## **PARTICIPANT INFORMATION SHEET & CONSENT FORM**

### **The effect of mood change on thoughts about the self: in 'Looked After' young people and controls**

You are being invited to take part in a research project by staff at the Institute of Psychiatry, King's College London. This project is being carried out together with Lewisham 'Looked After' children services. Before you decide whether to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read this sheet carefully and discuss it with your legal guardian, relatives and your social worker if you wish. This sheet gives you information to help you to decide whether or not you wish to take part in the project. Please contact us if there is anything that is not clear or if you would like more information. Thank you for reading this.

#### **Why are we doing this research?**

This project aims to find out more about how people think about themselves when they feel low in mood. We will be talking to one group of young people that are 'Looked After' (i.e. in foster care, residential care or under a care order) and another group of young people from local secondary schools. We hope that the results will improve our understanding of how thoughts change when people feel low in mood. We hope this will lead to better mental health services for young people.

#### **Why have I been invited?**

You have been invited because you are a 'Looked After' adolescent (aged between 11-17 years) who is currently living with foster parents, in private fostering arrangements or is subject to a care order.

If you are interested in taking part, we will talk to you on the phone (or in person if you prefer) about the research, ask you a few questions and then arrange a time to meet you to complete a few tasks.

### **Do I have to take part?**

No, it is up to you whether you want to take part or not and you are free to pull out at any time without giving a reason. If your carer says you can take part in the project but you don't want to then you will not have to take part.

If you are interested in taking part then we will contact you by phone and arrange a time to meet. The tasks will take no longer than an hour and will take place at a pre-arranged place. We can arrange for the tasks to take place in your home or school, whichever is this is better for you. Your ongoing healthcare, including future or current treatment will not be affected whether you choose to take part or not. Everyone who takes part will receive £10 to thank them for their time. Money can be claimed for extra travel costs; this will be discussed before the interview takes place.

### **What will happen to me if I take part?**

Once you have agreed to take part in the project you will be contacted by the researcher by telephone. You will be asked to attend a 45 minute long interview in which you will be asked to think about a time when you were sad/happy and then answer questions about how you think about yourself. You will be asked to remember events that have happened in your life and complete two short tasks about what certain words mean. Only the researcher will have access to the answers you give and they will be kept on a computer that is protected by a password only the researcher knows; no one else will be able to see your answers. Once the results have been scored up then they will be destroyed.

### **Are there any risks?**

The tasks in this project have been used repeatedly in other research studies and there are no known risks involved in the project. If you do find any of the questions upsetting you can refuse to answer them or you may discuss them with the main researcher, Kylie Mitchell (Clinical Psychologist in Training). Dr Matt Woolgar (Clinical Psychologist) will also be available to contact should you wish to discuss anything further. If you would like to make an independent complaint about the project then please contact your social worker.

### **What are the possible benefits of taking part?**

There is no intended clinical benefit to you from taking part in this project and it will not affect the care you receive. However, we hope that information from this project will help us to understand more about the thoughts young people have when they feel depressed and how we may help them via treatment and assessment.

### **Will my taking part in this project be kept confidential?**

We will keep your information in confidence. This means we will only tell those who have a need or right to know. Your name is not on the questionnaires we will complete together. The only information we need about you is asked during the interview and no other information will be taken from you or the clinic. Questionnaires and paper results will be stored in locked filing cabinets that can only be opened by staff involved in this project. Your results will be put into a computer file, but again your name will not be on this and the files will be password protected.

The only situation in which we might tell someone what you have told us would be if we thought that you or someone else might be at risk of harm, or if you told us about

something criminal in nature. If we thought either yourself or someone was at risk of harm, we would talk to you about the issue and let your clinical team and social worker know how you feel.

#### **What will happen to the results of the research project?**

The research should be completed by the end of 2012. The results will be written-up as part of Kylie Mitchell's Doctoral Thesis in Clinical Psychology, and if possible, will also be published. You will be sent a newsletter to let you know of the results if you wish. None of the questionnaires or results will be displayed in the newsletter or project write up, so readers will not know you were in the project.

#### **Who has reviewed the project?**

An ethical review of this project has been carried out by the East London NHS Research Ethics Committee (ref 11/LO/0245). The requirements of the Data Protection Act will be complied with at all times.

#### **Contact for Further Information:**

Should you need further information please contact Kylie Mitchell, Clinical Psychologist in Training (tel: X).

#### **★ Key questions:**

1. Do you understand that you do not have to take part if you do not want to?
2. Do you understand that you can pull out of the project whenever you like, without your health care/education being affected?
3. Do you understand that your answers and personal information will not be shared with anybody else?
4. Do you understand that we will only tell someone what you have said if we are worried about you or someone else?

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Thank you very much for taking the time to consider this research project.

**If you decide to take part you are still free to withdraw at any time without giving a reason. This will not affect the standard of care you receive.**

**Institute of Psychiatry**  
at the Maudsley



LREC Project Number: 11/LO/0245  
Participant Identification Number for this trial:

## **PARTICIPANT CONSENT FORM**

**Title of Project: The effect of mood change on thoughts about the self: in 'Looked After' adolescents and controls**

If you wish to take part in this project, please complete this form and return it to Kylie Mitchell or your social worker

Name of Researcher: **Kylie Mitchell**

Name of Participant:

Address:

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Telephone number:

### **Please tick box:**

1. I have read the information sheet (dated 08/04/11) for the above project and have been able to ask questions.
2. I understand that I can choose whether I would like to take part in the project or not and I am free to pull out at any time, without giving any reason; without my health care or education being affected.
3. I understand that the only situation in which we might tell someone about things that have been said in confidence would be if we thought that you or someone else might be at risk of harm, or if we were told about something that is criminal in nature.
4. I agree to take part in the above project.

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Name of Participant      Date      Signature

1 for participant; 1 for researcher

## **6.2 Information and consent sheets for control participants.**

**Institute of Psychiatry**  
at the Maudsley



### **YOUNG PERSON (CONTROL) INFORMATION SHEET & CONSENT FORM**

#### **The effect of mood change on thoughts about the self: in 'Looked After' adolescents and controls**

You are being invited to take part in a research project being conducted by research staff at the Institute of Psychiatry, King's College London. This project is being carried out together with South London and Maudsley (SLAM) 'Looked After' children services. Before you decide whether to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with your legal guardian/parents and your GP if you wish. This information sheet is intended to give you enough information to decide whether or not you wish to take part in the project. Please don't hesitate to contact us if there is anything that is not clear or if you would like more information. Please take your time to decide whether or not you wish to take part. Thank you for reading this.

#### **What is the purpose of the project?**

This project aims to find out more about how people think about themselves when they feel low in mood. The project will be looking at the reactions of one group of adolescents that are 'Looked After' (i.e. in foster care, residential care or subject to a care order) and another group of adolescents recruited through a secondary school. We hope that the results will improve our understanding of how thoughts change when people feel low in mood and may eventually lead to improvements in the delivery of treatment and assessment in health services.

#### **Why have I been invited?**

You have been invited because you are an adolescent that is aged 11-16 years old who attends secondary school. Your answers will be compared with answers from 'Looked After' children to see if your different life experiences have caused you to have different thoughts when you feel sad.

If you are interested in taking part, we will talk to you and your legal guardian/parent on the phone (or in person if you prefer) about the research, ask you a few questions and then arrange a time to meet you to complete a few tasks.

### **Do I have to take part?**

No, it is up to you whether you want to take part or not and you are free to pull out at any time without giving a reason. If your parent/legal guardian says you can take part in the project but you don't want to then you will not have to take part. If you are interested in taking part then we will contact you by phone and arrange a time to meet. The tasks will take no longer than an hour and will take place at your school. Your decision whether or not to take part will not affect any ongoing education or healthcare, including future or current treatment. Everyone who takes part will receive a £10 voucher to thank them for their time.

### **What will happen to me if I take part?**

Once you have agreed to take part in the project you will be asked to attend an hour long interview during school hours. In which you will be asked to think about a time when you were sad and then answer questions about how you think about yourself. You will be asked to remember events that have happened in your life and complete two short tasks about what certain words mean. Only the researcher will have access to the answers you give and they will be kept on a computer that is protected by a password only the researcher knows; no one else will be able to see your answers. Once the results have been scored up then they will be destroyed.

### **Are there any risks?**

There are no known risks involved in the project. If you do find any of the questions distressing you can refuse to answer them or you may discuss them or any other parts of the project with the main researcher, Kylie Mitchell (Clinical Psychologist in Training). Dr Matt Woolgar (Clinical Psychologist) will also be available to contact should you wish to discuss anything further. If you wish to make an independent complaint about the project then please contact [insert name and contact number of identified school staff member].

### **What are the possible benefits of taking part?**

There is no intended clinical benefit to you from taking part in this project and it will not affect the care you receive. However, we hope that the information gathered from the project will help us to understand more about the thoughts adolescents have when they feel depressed and how we may help them via treatment and assessment.

### **Will my taking part in this project be kept confidential?**

We will keep your information in confidence. This means we will only tell those who have a need or right to know. Your name is not on the questionnaires we will complete together. The only information we require about you is asked during the interview and no other information will be sought from you or the clinic. Questionnaires and paper results will be stored in locked filing cabinets that will only be accessible to the research staff involved in this project. Your results will be entered into a computer base for statistical analysis, but again your name will not be entered and the files will be password protected.

The requirements of the Data Protection Act will be complied with at all times, and the research has been approved by the East London NHS Research Ethics Committee (ref 11/LO/0245).



The only situation in which we might tell someone what you have told us would be if we thought that you or someone else might be at risk of harm, or if you told us about something criminal in nature. If we thought either yourself or someone was at risk of harm, we would talk to you about the issue and let your parents or a staff member at your school know how you feel.

#### **What will happen to the results of the research project?**

The research should be completed by the end of 2012. The results will be written-up as part of Kylie Mitchell's Doctoral Thesis in Clinical Psychology, and if possible, will also be published. You will be sent a newsletter to inform you of the results if you wish. None of the individual questionnaires or results will be displayed in the newsletter or project write up, so readers will not know you were in the project.

#### **Who has reviewed the project?**

An ethical review of this project has been carried out by the East London NHS Research Ethics Committee (ref 11/LO/0245).

#### **Contact for Further Information:**

Should you need further information please contact Kylie Mitchell, Clinical Psychologist in Training (tel: X).

#### **★ Key questions:**

1. Do you understand that you do not have to take part if you do not want to?
2. Do you understand that you can pull out of the project whenever you like, without your health care/education being affected?
3. Do you understand that your answers and personal information will not be shared with anybody else?
4. Do you understand that we will only tell someone what you have said if we are worried about you or someone else?

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Thank you very much for taking the time to consider this research project.

**If you decide to take part you are still free to withdraw at any time without giving a reason. This will not affect the standard of care you receive.**

**Institute of Psychiatry**  
at the Maudsley



LREC Project Number: 11/LO/0245  
Participant Identification Number for this trial:

## **YOUNG PERSON CONSENT FORM (CONTROL)**

### **Title of Project: The effect of mood change on thoughts about the self: in 'Looked After' adolescents and controls**

If you wish to take part in this project, please complete this form and return it in the stamped addressed envelope provided

Name of Researcher: **Kylie Mitchell**

Name of Participant: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone number: \_\_\_\_\_.

#### **Please tick box:**

1. I have read the information sheet (dated 08/04/11) for the above project and have been able to ask questions.
2. I understand that I can choose whether I would like to take part in the project or not and I am free to pull out at any time, without giving any reason; without my health care or education being affected.
3. I understand that the only situation in which we might tell someone about things that have been said in confidence would be if we thought that you or someone else might be at risk of harm, or if we were told about something that is criminal in nature.
4. I agree to take part in the above project.

Name of Participant      Date      Signature

1 for participant; 1 for researcher

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### **6.3 Information and consent sheets for carers.**

**Institute of Psychiatry**  
at the Maudsley



## **CARER INFORMATION SHEET & CONSENT FORM**

### **The effect of mood change on thoughts about the self: in 'Looked After' adolescents and controls**

Your child is being invited to take part in a research study being conducted by research staff at the Institute of Psychiatry, King's College London. This study is being carried out in liaison with SLAM 'Looked After' children services. Before you decide whether you would like your child to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with your child, social worker and your GP if you wish. This information sheet is intended to give you enough information to decide whether or not you wish your child to take part in the study. Please don't hesitate to contact us if there is anything that is not clear or if you would like more information. Please take your time to decide whether or not you wish to take part. Thank you for reading this.

#### **What is the purpose of the study?**

This study aims to find out more about how people think about themselves when they feel low in mood. The study will be looking at the reactions of one group of adolescents that are 'Looked After' (i.e. in foster care, residential care or subject to a care order) and another group of adolescents recruited through a secondary school. We hope that the results will improve our understanding of how thoughts change when people feel low in mood and may eventually lead to improvements in the delivery of treatment and assessment in health services.

#### **Why have I been invited?**

You have been invited because you are caring for a child that is living in foster care, in private fostering arrangements or is subject to a care order and aged between 11-17 years.

If you are interested in taking part, we will talk to you on the phone (or in person if you prefer) about the research, ask you and your child a few questions and then arrange a time to meet your child (and yourself if you wish) to complete a few tasks.

#### **Do I have to take part?**

No, taking part is voluntary and your child is free to withdraw at any time without giving a reason. You are also free to withdraw your child at any time.

If you are interested in taking part then we will contact you by phone and arrange a time to meet with you and your child. The tasks will take no longer than an hour and will take place at a pre-arranged place, e.g. home or school. Your decision whether or not to take part will not affect any ongoing education or healthcare, including future or current treatment. Your child will receive £10 to thank them for their time on completion of the tasks. Compensation can be claimed for extra travel expenses that may be incurred; this will be discussed prior to

the assessment taking place. At any stage of the study you are free to withdraw without giving a reason.

**What will happen to me if I take part?**

Once you have agreed to take part in the study you will be contacted by the researcher by telephone. Your child will be asked to attend a 45 minute long interview in which they will be asked to think about a time when they were sad/happy and then answer questions about they think about themselves. They will be asked to remember events that have happened in their life and complete two short tasks about what certain words mean. Only the researcher will have access to the answers they give and they will be kept on a computer that is protected by a password that only the researcher knows. Once the results have been scored up then they will be destroyed.

**Are there any risks?**

The protocol has been used repeatedly in previous research projects and there are no known risks involved in the study. If your child finds any of the questions distressing then they can decline to answer them or you both may discuss them or any other aspects of the study with the main researcher, Kylie Mitchell (Clinical Psychologist in Training), if there is anything you would like to discuss. Dr Matt Woolgar (Clinical Psychologist) will also be available to contact should you wish to discuss anything further. If you would like to make an independent complaint about the study, then please contact your social worker.

**What are the possible benefits of taking part?**

There is no intended clinical benefit to your child from taking part in this study and it will not affect the care you or they receive. However, we hope that the information gathered from the study will help us to identify those at risk of future mental health problems, understand more about the thoughts adolescents have when they feel low in mood and how we may help them via treatment and assessment.

**Will my taking part in this study be kept confidential?**

All information which is collected from the study will be kept strictly confidential. Neither you nor your child's name is on the questionnaires we will complete together. The only information we require about your child is asked during the interview and no other information will be sought from you, your child, the clinic or school. Questionnaires and paper results will be stored in locked filing cabinets that will only be accessible to the research staff involved in this study. The results will be entered into a computer base for statistical analysis, but again your child's name will not be entered and the files will be password protected.

The requirements of the Data Protection Act will be complied with at all times, and the research has been approved by the East London NHS Research Ethics Committee (ref 11/LO/0245).

The only situation in which we might have to break confidentiality would be if we thought that your child, you or someone else might be at risk of harm, or if we became aware of issues of a criminal nature. If we thought you, your child or someone else was at risk of harm, we would talk to you and your child about the issue and let the clinical team and social worker know how you both feel.

**What will happen to the results of the research study?**

The research should be completed by the end of 2012. The results will be written-up as part of Kylie Mitchell's Doctoral Thesis in Clinical Psychology, and if possible, will also be published. You and your child will be sent a newsletter to inform you of the results if you

wish. None of the individual questionnaires or experimental results will be displayed in the results so your child will not be identifiable in the report.

**Who has reviewed the study?**

An ethical review of this study has been carried out by the East London NHS Research Ethics Committee (ref 11/LO/0245).

**Contact for Further Information:**

Should you need further information please contact Kylie Mitchell, Clinical Psychologist in Training (tel: X).

Thank you very much for taking the time to consider this research study.

**If you decide to take part you are still free to withdraw at any time without giving a reason. This will not affect the standard of care you receive.**

Institute of Psychiatry  
at the Maudsley



LREC Study Number: 11/LO/0245  
Participant Identification Number for this trial:

### CARER CONSENT FORM

**Title of Project: The effect of mood change on thoughts about the self: in  
'Looked After' adolescents and controls**

If you wish to take part in this study, please complete this form  
and return it to Kylie Mitchell or your social worker

Name of Researcher: Kylie Mitchell

Name of Participant: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone number: \_\_\_\_\_

#### **Please initial box**

1. I confirm that I have read the information sheet (dated 08/04/11) for  
the above study and have had the opportunity to ask questions.
2. I understand that I can choose whether I would like my child to take part in the  
study or not and that I am free to withdraw them at any time, without giving any  
reason, without my or my child's medical care or legal rights being affected.
3. I understand that the only situation in which we might have to break confidentiality  
would be if we thought that your child or someone else might be at risk of harm,  
or if we became aware of issues of a criminal nature.
4. I agree to let my child take part in the above study.

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Name of Carer \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_

1 for carer; 1 for researcher

#### **6.4 Information and consent sheets for parents of control participants.**

**Institute of Psychiatry**  
at the Maudsley



### **PARENT (CONTROL) INFORMATION SHEET & CONSENT FORM**

#### **The effect of mood change on thoughts about the self: in 'Looked After' adolescents and controls**

Your child is being invited to take part in a research study being conducted by research staff at the Institute of Psychiatry, King's College London. This study is being carried out in liaison with SLAM 'Looked After' children services. Before you decide whether you would like your child to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with your legal guardian, relatives and your GP if you wish. This information sheet is intended to give you enough information to decide whether or not you wish your child to take part in the study. Please don't hesitate to contact us if there is anything that is not clear or if you would like more information. Please take your time to decide whether or not you wish to take part. Thank you for reading this.

#### **What is the purpose of the study?**

This study aims to find out more about how people think about themselves when they feel low in mood. The study will be looking at the reactions of one group of adolescents that are 'Looked After' (i.e. in foster care, residential care or subject to a care order) and another group of adolescents recruited through a secondary school. We hope that the results will improve our understanding of how thoughts change when people feel low in mood and may eventually lead to improvements in the delivery of treatment and assessment in health services.

#### **Why have I been invited?**

You have been invited because you are the parent/legal guardian of a child that is aged between 11-16 years. Your child's answers will be compared to answers provided by a sample of 'Looked After' Children to see if there are any differences in their responses.

If you are interested in taking part, we will talk to you on the phone (or in person if you prefer) about the research, ask you and your child a few questions and then arrange a time to meet them (and yourself if you wish) to complete a few tasks.

#### **Do I have to take part?**

No, taking part is voluntary and your child is free to withdraw at any time without giving a reason. You are also free to withdraw your child at any time.

If you are interested in taking part then we will contact you by phone and arrange a time to meet with you and your child. The tasks will take no longer than an hour and will take place at school. Your decision whether or not to take part will not affect any ongoing education or healthcare, including future or current treatment. Your child will receive a £10 voucher to

thank them for their time on completion of the tasks. At any stage of the study you are free to withdraw without giving a reason.

**What will happen to me if I take part?**

Once you have agreed to take part in the study you will be contacted by the researcher by telephone. Your child will be asked to attend an hour long interview in which they will be asked to think about a time when they were sad and then answer questions about they think about themselves. They will be asked to remember events that have happened in their life and complete two short tasks about what certain words mean. Only the researcher will have access to the answers they give and they will be kept on a computer that is protected by a password that only the researcher knows. Once the results have been scored up then they will be destroyed.

**Are there any risks?**

There are no known risks involved in the study. If your child does find any of the questions distressing then they can decline to answer them or you both may discuss them or any other aspects of the study with the main researcher, Kylie Mitchell (Clinical Psychologist in Training), if there is anything you would like to discuss. Dr Matt Woolgar (Clinical Psychologist) will also be available to contact should you wish to discuss anything further.

**What are the possible benefits of taking part?**

There is no intended clinical benefit to your child from taking part in this study and it will not affect the care you or they receive. However, we hope that the information gathered from the study will help us to understand more about the thoughts adolescents have when they feel low in mood and how we may help them via treatment and assessment.

**Will my taking part in this study be kept confidential?**

All information which is collected from the study will be kept strictly confidential. Neither you nor your child's name is on the questionnaires we will complete together. The only information we require about your child is asked during the interview and no other information will be sought from you or your child. Questionnaires and paper results will be stored in locked filing cabinets that will only be accessible to the research staff involved in this study. The results will be entered into a computer base for statistical analysis, but again your child's name will not be entered and the files will be password protected.

The requirements of the Data Protection Act will be complied with at all times, and the research has been approved by the East London NHS Research Ethics Committee (ref 11/LO/0245).

The only situation in which we might have to break confidentiality would be if we thought that your child, you or someone else might be at risk of harm, or if we became aware of issues of a criminal nature. If we thought you, your child or someone else was at risk of harm, we would talk to you and your child about the issue and let the clinical team and social worker know how you both feel.

**What will happen to the results of the research study?**

The research should be completed by the end of 2012. The results will be written-up as part of Kylie Mitchell's Doctoral Thesis in Clinical Psychology, and if possible, will also be published. You and your child will be sent a newsletter to inform you of the results if you wish. None of the individual questionnaires or experimental results will be displayed in the results so your child will not be identifiable in the report.



**Who has reviewed the study?**

An ethical review of this study has been carried out by the East London NHS Research Ethics Committee (ref: 11/LO/0245).

**Contact for Further Information:**

Should you need further information please contact Kylie Mitchell, Clinical Psychologist in Training (tel: X).

Thank you very much for taking the time to consider this research study.

**If you decide to take part you are still free to withdraw at any time without giving a reason. This will not affect the standard of care you receive.**

Institute of Psychiatry  
at the Maudsley



LREC Study Number: 11/LO/0245  
Participant Identification Number for this trial:

**PARENTAL CONSENT FORM (CONTROL)**

**Title of Project: The effect of mood change on thoughts about the self: in  
'Looked After' adolescents and controls**

If you wish to take part in this study, please complete this form  
and return it in the stamped addressed envelope provided

Name of Researcher: Kylie Mitchell

Name of Participant: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone number: \_\_\_\_\_

**Please initial box**

1. I confirm that I have read the information sheet (dated 08/04/11) for  
the above study and have had the opportunity to ask questions.
2. I understand that I can choose whether I would like my child to take part in the  
study or not and that I am free to withdraw them at any time, without giving any  
reason, without my or my child's medical care or legal rights being affected.
3. I understand that the only situation in which we might have to break confidentiality  
would be if we thought that your child or someone else might be at risk of harm,  
or if we became aware of issues of a criminal nature.
4. I agree to let my child take part in the above study.

Name of Parent/Legal Guardian \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_

1 for parent/legal guardian; 1 for researcher



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## 6.5 Consent sheet for professionals.

**Institute of Psychiatry**  
at the Maudsley



LREC Study Number: 11/LO/0245  
Participant Identification Number for this trial:

### PROFESSIONAL CONSENT FORM

**Title of Project: The effect of mood change on thoughts about the self: in  
'Looked After' adolescents and controls**

If you wish to take part in this study, please complete this form  
and return it to Kylie Mitchell (Trainee Clinical Psychologist)

Name of Researcher: Kylie Mitchell

Name of Participant: \_\_\_\_\_

#### Please initial box

1. I confirm that I have read the information sheet for the child and their carer/s  
(dated 08/04/11) for the above study and have had the opportunity to ask questions.
2. I understand that I can choose whether I would like the child to take part in the  
study or not and that I am free to withdraw them at any time, without giving any  
reason, without the child's medical care or legal rights being affected.
3. I understand that the only situation in which we might have to break confidentiality  
would be if we thought that the child or someone else might be at risk of harm,  
or if we became aware of issues of a criminal nature.
4. I agree to let the child take part in the above study.



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Name of Participant \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_

1 for professional; 1 for researcher

## 6.6 Self-descriptor rating sheet – version 1.

Words that describe what I'm like.

	<u>Not at all</u>	<u>A little like me</u>	<u>A lot like me</u>	<u>Very much</u>
<u>Modern</u>				
<u>Ordinary</u>				
<u>Keen</u>				
<u>Scared</u>				
<u>Exciting</u>				
<u>Bad</u>				
<u>Coward</u>				
<u>Smart</u>				
<u>Wicked</u>				
<u>Weak</u>				
<u>Talented</u>				
<u>Useless</u>				
<u>Helpful</u>				
<u>Kind</u>				
<u>Ugly</u>				
<u>Unwanted</u>				
<u>Faithful</u>				
<u>Happy</u>				
<u>Strong</u>				
<u>Nice</u>				
<u>Boring</u>				
<u>Worthless</u>				
<u>Loser</u>				
<u>Glad</u>				
<u>Honest</u>				
<u>Pleasant</u>				
<u>Nasty</u>				
<u>Stupid</u>				
<u>Charming</u>				
<u>Respected</u>				
<u>Brave</u>				
<u>Worried</u>				
<u>Unhappy</u>				
<u>Active</u>				
<u>Easy</u>				
<u>Settled</u>				

## 6.7 Self-descriptor rating sheet – version 2.

Words that describe what I'm like.

	<u>Not at all</u>	<u>A little like me</u>	<u>A lot like me</u>	<u>Very much</u>
<u>Average</u>				
<u>Choosy</u>				
<u>Steady</u>				
<u>Lovable</u>				
<u>Reliable</u>				
<u>Frightened</u>				
<u>Confident</u>				
<u>Cheerful</u>				
<u>Horrible</u>				
<u>Nice</u>				
<u>Sad</u>				
<u>Attractive</u>				
<u>Good</u>				
<u>Caring</u>				
<u>Feeble</u>				
<u>Afraid</u>				
<u>Amusing</u>				
<u>Pathetic</u>				
<u>Skilful</u>				
<u>Powerful</u>				
<u>Successful</u>				
<u>Foolish</u>				
<u>Hopeless</u>				
<u>Dull</u>				
<u>Cruel</u>				
<u>Alone</u>				
<u>Truthful</u>				
<u>Pleased</u>				
<u>Terrible</u>				
<u>Friendly</u>				
<u>Failure</u>				
<u>Nervous</u>				
<u>Hated</u>				
<u>Stylish</u>				
<u>Regular</u>				
<u>Eager</u>				

## [6.8 — WASI vocabulary and similarities subtests](#)

## 6.9 GDI short form

## 6.840 Children's Response Style Questionnaire.

### CRSQ

When kids feel sad, they do and think different things. What about you? What do you do and think when you feel sad? For each question, it is very important that you mark what you usually do, not what you think you should do.

<u>When you feel sad, do you...</u>	<u>Almost Never</u>	<u>Sometimes</u>	<u>Often</u>	<u>Almost Always</u>
1. <u>Think about how alone you feel</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. <u>Help someone else with something so you don't think about your problem</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. <u>Go away by yourself and think about why you feel this way</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. <u>Watch TV or play video games so you don't think about how sad you are</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. <u>Think "I'm ruining everything"</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. <u>Go to your favourite place and get your mind off your feelings</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. <u>Think about how sad you feel</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. <u>Spend a lot of time on schoolwork</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. <u>Go someplace alone to think about your feelings</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. <u>Do something you enjoy</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. <u>Think about how angry you are with yourself</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. <u>Do something fun with a friend</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. <u>Think about other times when you felt sad</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. <u>Read a book or magazine</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. <u>Think about a recent situation wishing it had gone better</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



16.	<u>Ask a friend/parent/teacher to help you solve your problem</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>When you feel sad, do you...</u>	<u>Almost Never</u>	<u>Sometimes</u>	<u>Often</u>	<u>Almost Always</u>
17.	<u>Think "There must be something wrong with me or I wouldn't feel this way"</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	<u>Try to find something good in the situation or something you learned</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	<u>Think "I am disappointing my friends/family/teachers"</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	<u>Talk it out with someone who you think can help you feel better</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	<u>Think about all you failures, faults, and mistakes</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.	<u>Think of a way to make your problem better</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.	<u>Think "Why can't I handle things better"</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.	<u>Remind yourself that this feeling will go away</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25.	<u>Think about how you don't feel like doing anything</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**6.911 Mood Check Sheets.**

ID: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Baseline

Not at all Very  
Happy Happy

Not at all Very  
Angry Angry

Not at all Very  
Sad Sad

Not at all Very  
Anxious Anxious

Induction 1: \_\_\_\_\_

Not at all Very  
Happy Happy

Not at all Very  
Angry Angry

Not at all Very  
Sad Sad

Not at all Very  
Anxious Anxious

ID: \_\_\_\_\_ Time: \_\_\_\_\_

Baseline 2

Not at all  
Happy

Very  
Happy

Not at all  
Angry

Very  
Angry

Not at all  
Sad

Very  
Sad

Not at all  
Anxious

Very  
Anxious

Induction 2: \_\_\_\_\_

Not at all  
Happy

Very  
Happy

Not at all  
Angry

Very  
Angry

Not at all  
Sad

Very  
Sad

Not at all  
Anxious

Very  
Anxious

End of Negative Induction [\_\_\_\_\_]

Not at all  
Happy

Very  
Happy

Not at all  
Angry

Very  
Angry

Not at all  
Sad

Very  
Sad

Not at all  
Anxious

Very  
Anxious

## 6.102 Standardised instructions for mood induction conditions.

### SRET Protocol A

#### A1) PART ONE: Negative Mood

1. I want you to score how happy, angry, sad and anxious you feel at the moment on this sheet of paper. I'll come back to this form from time to time
2. I want you to try really hard to get into a sadder mood and try to stay that way while we do the next few things. This could be quite hard work so I have some ideas to help you feel a bit more down than you usually do.
  - It will be easier if you try to remember a time which makes you feel sad or when someone else felt sad. What you remember could be real or something you've seen. You don't need to tell me about it. Just try to think of something that will make you feel sadder than normal.
  - I will also play you a short bit of music that sounds quite sad. So close your eyes and try to feel sadder than your usual self.
3. Can you tell me how happy, angry, sad and anxious you feel at the moment on this sheet of paper again.
4. Now we are going to read through this list of words and I want you to rate them for how much you think they describe what you are like.
5. Now we've read gone through this list, I wonder how many of the words you just scored you can remember. I want you to tell me as many of the words that were on the list as you can, whether or not you thought they described you.
6. OK, we've finished with this task now, so let's make sure your feeling normal again. OK? Can you tell me how happy, angry, sad and anxious you feel at the moment on this sheet of paper again.

-- Other tasks--

#### A2) PART TWO: Neutral Mood

1. On this sheet of paper again, I want you to tell me how you are feeling at the moment.
2. I want you to get into your normal mood. Just try to be in your usual frame of mind.
  - It may help if you just think of the kind of things you usually do in the evenings or if you think of something you would chose to do if you could.
  - I'll also play you a short bit of music that might help you get into a normal mood.
3. Can you tell me how happy, angry, sad and anxious you feel at the moment on this sheet of paper again.
4. Now we are going to read through this list of words and I want you to rate them for how much you think they describe what you are like.
5. Now we've read gone through this list, I wonder how many of the words you just scored you can remember. I want you to tell me as many of the words that were on the list as you can, whether or not you thought they described you.

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## SRET Protocol B

### B1) PART ONE: Neutral Mood

1. I want you to score how happy, angry, sad and anxious you feel at the moment on this sheet of paper. I'll come back to this form from time to time
2. I want you to get into your normal mood. Just try to be in your usual frame of mind.
  - It may help if you just think of the kind of things you usually do in the evenings or if you think of something you would chose to do if you could.
  - I'll also play you a short bit of music that might help you get into a normal mood.
3. Can you tell me how happy, angry, sad and anxious you feel at the moment on this sheet of paper again.
4. Now we are going to read through this list of words and I want you to rate them for how much you think they describe what you are like.
5. Now we've read gone through this list, I wonder how many of the words you just scored you can remember. I want you to tell me as many of the words that were on the list as you can, whether or not you thought they described you.

-- Other tasks --

### B2) PART TWO: Negative Mood

1. On this sheet of paper again, I want you to tell me how you are feeling at the moment.
2. I want you to try really hard to get into a sadder mood and try to stay that way while we do the next few things. This could be quite hard work so I have some ideas to help you feel a bit more down than you usually do.
  - It will be easier if you try to remember a time which makes you feel sad or when someone else felt sad. The thing you remember could be real or something you've seen. You don't need to tell me about it, just try to think of something that will make you feel sadder than normal.
  - I will also play you a short bit of music that sounds quite sad.
3. Can you tell me how happy, angry, sad and anxious you feel at the moment on this sheet of paper again.
4. Now we are going to read through this list of words and I want you to rate them for how much you think they describe what you are like.
5. Now we've read gone through this list, I wonder how many of the words you just scored you can remember. I want you to tell me as many of the words that were on the list as you can, whether or not you thought they described you.
6. OK, we've finished with this task now, so let's make sure you're feeling normal again. OK? Can you tell me one last time how happy, angry, sad and anxious you feel at the moment on this sheet of paper.

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### 6.113 Autobiographical Memory Test: instructions and administration sheet.

#### AMT Instructions

I am interested in how you remember particular events or things that have happened to you. By a particular event, I mean something that happened on **one** particular day.

I'm going to help you to remember particular events by giving you a word to respond to. When I give you the word, I want you to tell me about a particular time it makes you remember. Just tell me any memory about a particular time or day that comes into your head.

The memory you recall could be a long time ago or very recently, it doesn't matter. It could be something very important or something very ordinary. But the main thing is, if you can, I want you to tell me about a memory of something that happened on one a particular day.

I'll be using a stopwatch, but that's not because this is a speed test – it's just because I want to give you a certain amount of time for each word.

For example, if I gave someone the word *party*. They could say "I had a laugh at the Christmas party" because that tells me about something that happened on one particular day. But it wouldn't be fine to say: "When I go to parties I have a good laugh" because that doesn't tell me about one particular occasion.

"I had a good session with my key-worker yesterday" would be fine BUT "I always have a good session with my key-worker" would not be good. WHY? Because it doesn't tell me about a particular day or time.

"This morning's maths lesson was difficult" would be fine but if someone said "I find maths classes difficult" it would not be fine.

#### Three practices with feedback:

Tasty.

Thirsty.

Snowing

#### If first response not specific:

Prompt: "Can you remember a particular time when ... [ e.g. that happened]"

**Words for AMT**

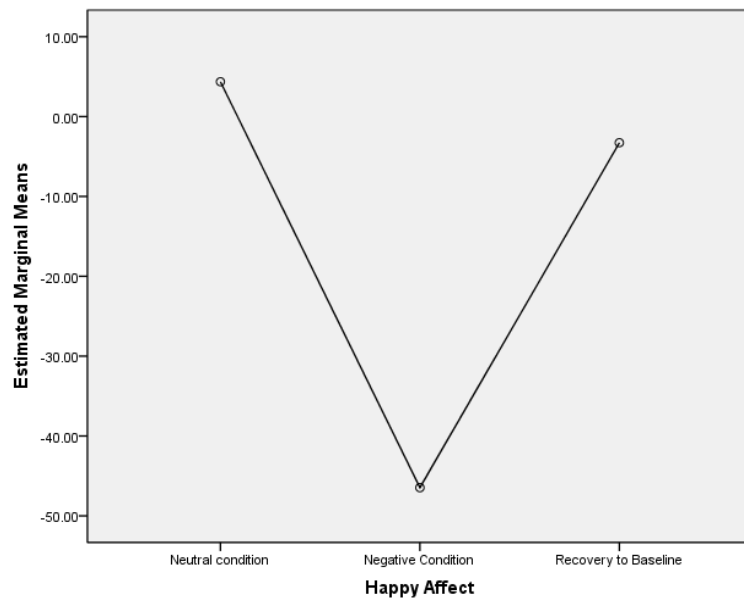
Two neutral practice words (cat, hot).

Five positive in tone (joy, safe, sunny, lucky, surprised)

Five negative (worse, angry, clumsy, hurt, lonely).



**6.124 Plot illustrating the change in happy affect over 3 conditions of mood induction.**



**6.135 Correlations between demographic characteristics and the self-descriptor endorsement and psychometric data: split by group membership.**

		<u>Neutral induction</u>		<u>Negative induction</u>	
		<u>Positive descriptor</u>	<u>Negative descriptor</u>	<u>Positive descriptor</u>	<u>Negative descriptor</u>
<u>LAC (N=20)</u>	<u>Age</u>	<u>-.093</u>	<u>.389</u>	<u>-.090</u>	<u>.393</u>
	<u>Gender</u>	<u>-.222</u>	<u>.191</u>	<u>-.269</u>	<u>.323</u>
	<u>VIQ</u>	<u>-.2-2</u>	<u>-.072</u>	<u>-.246</u>	<u>.306</u>
	<u>CDI</u>	<u>-.181</u>	<u>.557*</u>	<u>.003</u>	<u>.581**</u>
<u>Control (N=40)</u>	<u>Age</u>	<u>.094</u>	<u>.104</u>	<u>-.056</u>	<u>.051</u>
	<u>Gender</u>	<u>-.066</u>	<u>.309</u>	<u>-.314*</u>	<u>.414**</u>
	<u>VIQ</u>	<u>-.224</u>	<u>.185</u>	<u>-.073</u>	<u>-.044</u>
	<u>CDI</u>	<u>-.047</u>	<u>.520**</u>	<u>-.014</u>	<u>.295</u>

NB: \*Correlation is significant at the  $p < .05$  level.  
 \*\* Correlation is significant at the  $p < .01$  level.

**6.146 The mean and standard deviation of the number of self-descriptors  
(positive and negative) endorsed, by gender.**

		<u>Neutral Mood</u>		<u>Negative Mood</u>	
	<u>N</u>	<u>Positive descriptors</u>	<u>Negative Descriptors</u>	<u>Positive descriptors</u>	<u>Negative Descriptors</u>
<u>LAC</u>	<u>Male</u>	<u>4</u>	<u>45.0 (10.0)</u>	<u>19.8 (2.1)</u>	<u>43.5 (8.7)</u>
	<u>Female</u>	<u>16</u>	<u>41.3 (6.0)</u>	<u>21.6 (4.2)</u>	<u>39.7 (5.0)</u>
<u>CONTROL</u>	<u>Male</u>	<u>12</u>	<u>41.2 (5.2)</u>	<u>19.5 (3.9)</u>	<u>43.4 (5.3)</u>
	<u>Female</u>	<u>28</u>	<u>40.4 (5.9)</u>	<u>22.1 (3.6)</u>	<u>39.9 (4.9)</u>
<u>TOTAL</u>	<u>Male</u>	<u>16</u>	<u>42.2 (6.5)</u>	<u>19.6 (3.5)</u>	<u>43.4 (6.0)</u>
	<u>Female</u>	<u>44</u>	<u>40.7 (5.9)</u>	<u>21.9 (3.8)</u>	<u>39.8 (4.9)</u>

NB: Each cell includes the mean and standard deviation as shown: mean (SD).

## 6.15 SPSS output for mixed ANOVA for endorsement data: positive words (controlling for gender).

### Tests of Within-Subjects Effects

Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
InductionPOSWords	Sphericity Assumed	2.078	1	2.078	.283	.597	.005
	Greenhouse-Geisser	2.078	1.000	2.078	.283	.597	.005
	Huynh-Feldt	2.078	1.000	2.078	.283	.597	.005
	Lower-bound	2.078	1.000	2.078	.283	.597	.005
InductionPOSWords * Group	Sphericity Assumed	27.940	1	27.940	3.807	.056	.064
	Greenhouse-Geisser	27.940	1.000	27.940	3.807	.056	.064
	Huynh-Feldt	27.940	1.000	27.940	3.807	.056	.064
	Lower-bound	27.940	1.000	27.940	3.807	.056	.064
InductionPOSWords * Gender	Sphericity Assumed	9.340	1	9.340	1.273	.264	.022
	Greenhouse-Geisser	9.340	1.000	9.340	1.273	.264	.022
	Huynh-Feldt	9.340	1.000	9.340	1.273	.264	.022
	Lower-bound	9.340	1.000	9.340	1.273	.264	.022
InductionPOSWords * Group * Gender	Sphericity Assumed	7.768	1	7.768	1.058	.308	.019
	Greenhouse-Geisser	7.768	1.000	7.768	1.058	.308	.019
	Huynh-Feldt	7.768	1.000	7.768	1.058	.308	.019
	Lower-bound	7.768	1.000	7.768	1.058	.308	.019
Error(InductionPOSWords)	Sphericity Assumed	410.982	56	7.339			
	Greenhouse-Geisser	410.982	56.000	7.339			
	Huynh-Feldt	410.982	56.000	7.339			
	Lower-bound	410.982	56.000	7.339			

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## 6.16 SPSS output for mixed ANOVA for endorsement data: negative words (controlling for gender and depression score).

### Tests of Within-Subjects Effects

Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Induction	Sphericity Assumed	4.866	1	4.866	.679	.413	.012
	Greenhouse-Geisser	4.866	1.000	4.866	.679	.413	.012
	Huynh-Feldt	4.866	1.000	4.866	.679	.413	.012
	Lower-bound	4.866	1.000	4.866	.679	.413	.012
Induction * Gender	Sphericity Assumed	13.920	1	13.920	1.943	.169	.034
	Greenhouse-Geisser	13.920	1.000	13.920	1.943	.169	.034
	Huynh-Feldt	13.920	1.000	13.920	1.943	.169	.034
	Lower-bound	13.920	1.000	13.920	1.943	.169	.034
Induction * CDITscore	Sphericity Assumed	6.441	1	6.441	.899	.347	.016
	Greenhouse-Geisser	6.441	1.000	6.441	.899	.347	.016
	Huynh-Feldt	6.441	1.000	6.441	.899	.347	.016
	Lower-bound	6.441	1.000	6.441	.899	.347	.016
Induction * Group	Sphericity Assumed	5.149	1	5.149	.719	.400	.013
	Greenhouse-Geisser	5.149	1.000	5.149	.719	.400	.013
	Huynh-Feldt	5.149	1.000	5.149	.719	.400	.013
	Lower-bound	5.149	1.000	5.149	.719	.400	.013
Error(Induction)	Sphericity Assumed	401.291	56	7.166			
	Greenhouse-Geisser	401.291	56.000	7.166			
	Huynh-Feldt	401.291	56.000	7.166			
	Lower-bound	401.291	56.000	7.166			

## 6.1757 Correlations between demographic characteristics and the recall data: split by group membership.

	<u>Neutral induction</u>		<u>Negative induction</u>	
	<u>Positive recall</u>	<u>Negative recall</u>	<u>Positive recall</u>	<u>Negative recall</u>
<u>LAC Age</u>	<u>-.04</u>	<u>-.03</u>	<u>.41</u>	<u>.23</u>
<u>Gender</u>	<u>.12</u>	<u>.36</u>	<u>.21</u>	<u>.26</u>
<u>VIQ</u>	<u>.39</u>	<u>.13</u>	<u>.20</u>	<u>.12</u>
<u>CDI</u>	<u>.15</u>	<u>.51*</u>	<u>-.25</u>	<u>.17</u>
<u>Control Age</u>	<u>.05</u>	<u>-.01</u>	<u>.04</u>	<u>-.14</u>
<u>Gender</u>	<u>.16</u>	<u>-.02</u>	<u>-.06</u>	<u>.07</u>
<u>VIQ</u>	<u>.17</u>	<u>.34*</u>	<u>.07</u>	<u>.09</u>
<u>CDI</u>	<u>.18</u>	<u>.20</u>	<u>.01</u>	<u>.01</u>

NB: \*Correlation is significant at the  $p < .05$  level.

\*\* Correlation is significant at the  $p < .01$  level.

**6.1868 Correlation coefficients for the self-descriptor data:  
endorsement and recall.**

			<u>Endorsement</u>			
			<u>Neutral Mood</u>		<u>Negative Mood</u>	
			<u>Positive descriptors</u>	<u>Negative descriptors</u>	<u>Positive descriptors</u>	<u>Negative descriptors</u>
<u>Recall</u>	<u>Neutral Mood</u>	<u>Positive descriptors</u>	<u>-.001</u>	<u>.24</u>	<u>.20</u>	<u>.007</u>
		<u>Negative descriptors</u>	<u>-.13</u>	<u>.16</u>	<u>-.03</u>	<u>.18</u>
	<u>Negative Mood</u>	<u>Positive descriptors</u>	<u>.48**</u>	<u>.17</u>	<u>.17</u>	<u>.19</u>
		<u>Negative descriptors</u>	<u>.37**</u>	<u>.14</u>	<u>.03</u>	<u>.09</u>

NB: \*Correlation is significant at the p<.05 level.

\*\* Correlation is significant at the p<.01 level.

## 6.19 SPSS output for mixed ANOVA for recall data: positive words (controlling for age).

Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Induction	Sphericity Assumed	520.320	1	520.320	1.651	.204	.029
	Greenhouse-Geisser	520.320	1.000	520.320	1.651	.204	.029
	Huynh-Feldt	520.320	1.000	520.320	1.651	.204	.029
	Lower-bound	520.320	1.000	520.320	1.651	.204	.029
Induction * AgeYEARS	Sphericity Assumed	615.840	1	615.840	1.955	.168	.034
	Greenhouse-Geisser	615.840	1.000	615.840	1.955	.168	.034
	Huynh-Feldt	615.840	1.000	615.840	1.955	.168	.034
	Lower-bound	615.840	1.000	615.840	1.955	.168	.034
Induction * Group	Sphericity Assumed	.371	1	.371	.001	.973	.000
	Greenhouse-Geisser	.371	1.000	.371	.001	.973	.000
	Huynh-Feldt	.371	1.000	.371	.001	.973	.000
	Lower-bound	.371	1.000	.371	.001	.973	.000
Error(Induction)	Sphericity Assumed	17643.419	56	315.061			
	Greenhouse-Geisser	17643.419	56.000	315.061			
	Huynh-Feldt	17643.419	56.000	315.061			
	Lower-bound	17643.419	56.000	315.061			

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## 6.20 SPSS output for mixed ANOVA for recall data: negative words (controlling for depression score).

### Tests of Within-Subjects Effects

Measure: MEASURE\_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Induction	Sphericity Assumed	2244.867	1	2244.867	8.200	.006	.128
	Greenhouse-Geisser	2244.867	1.000	2244.867	8.200	.006	.128
	Huynh-Feldt	2244.867	1.000	2244.867	8.200	.006	.128
	Lower-bound	2244.867	1.000	2244.867	8.200	.006	.128
Induction * CDITscore	Sphericity Assumed	2110.499	1	2110.499	7.709	.007	.121
	Greenhouse-Geisser	2110.499	1.000	2110.499	7.709	.007	.121
	Huynh-Feldt	2110.499	1.000	2110.499	7.709	.007	.121
	Lower-bound	2110.499	1.000	2110.499	7.709	.007	.121
Induction * Group	Sphericity Assumed	417.351	1	417.351	1.525	.222	.027
	Greenhouse-Geisser	417.351	1.000	417.351	1.525	.222	.027
	Huynh-Feldt	417.351	1.000	417.351	1.525	.222	.027
	Lower-bound	417.351	1.000	417.351	1.525	.222	.027
Error(Induction)	Sphericity Assumed	15330.575	56	273.760			
	Greenhouse-Geisser	15330.575	56.000	273.760			
	Huynh-Feldt	15330.575	56.000	273.760			
	Lower-bound	15330.575	56.000	273.760			

## 6.21 Mean, standard deviation, minimum and maximum scores for all psychometric measures.

	<u>LAC</u>					<u>Control</u>					<u>All</u>				
	<u>N</u>	<u>Mean</u>	<u>SD</u>	<u>Min</u>	<u>Max</u>	<u>N</u>	<u>Mean</u>	<u>SD</u>	<u>Min</u>	<u>Max</u>	<u>N</u>	<u>Mean</u>	<u>SD</u>	<u>Min</u>	<u>Max</u>
<u>CDI T-score</u>	<u>21</u>	<u>50.8</u>	<u>9.8</u>	<u>39</u>	<u>81</u>	<u>40</u>	<u>50.5</u>	<u>7.7</u>	<u>40</u>	<u>66</u>	<u>61</u>	<u>50.6</u>	<u>8.4</u>	<u>39</u>	<u>70</u>
<u>CRSQ-R</u>	<u>21</u>	<u>14.3</u>	<u>9.4</u>	<u>1</u>	<u>35</u>	<u>39</u>	<u>16.0</u>	<u>9.0</u>	<u>2</u>	<u>34</u>	<u>60</u>	<u>15.4</u>	<u>9.1</u>	<u>1</u>	<u>35</u>
<u>CRSQ-D</u>	<u>21</u>	<u>7.8</u>	<u>3.2</u>	<u>2</u>	<u>21</u>	<u>39</u>	<u>7.8</u>	<u>4.5</u>	<u>2</u>	<u>21</u>	<u>60</u>	<u>7.8</u>	<u>4.0</u>	<u>2</u>	<u>21</u>
<u>CRSQ-PS</u>	<u>21</u>	<u>6.0</u>	<u>2.4</u>	<u>0</u>	<u>14</u>	<u>39</u>	<u>5.9</u>	<u>3.5</u>	<u>0</u>	<u>14</u>	<u>60</u>	<u>5.9</u>	<u>3.2</u>	<u>0</u>	<u>14</u>
<u>CRSQ Ratio</u>	<u>21</u>	<u>1.3</u>	<u>1.5</u>	<u>14</u>	<u>7</u>	<u>39</u>	<u>1.4</u>	<u>1.1</u>	<u>.13</u>	<u>4.9</u>	<u>60</u>	<u>1.4</u>	<u>1.2</u>	<u>.09</u>	<u>7.0</u>
<u>AMT Positive Specific</u>	<u>21</u>	<u>3.2</u>	<u>1.5</u>	<u>1</u>	<u>5</u>	<u>40</u>	<u>3.8</u>	<u>1.3</u>	<u>0</u>	<u>5</u>	<u>61</u>	<u>3.6</u>	<u>1.4</u>	<u>0</u>	<u>5</u>
<u>AMT Negative Specific</u>	<u>21</u>	<u>3.6</u>	<u>1.4</u>	<u>1</u>	<u>5</u>	<u>40</u>	<u>4.0</u>	<u>1.3</u>	<u>1</u>	<u>5</u>	<u>61</u>	<u>3.8</u>	<u>1.3</u>	<u>1</u>	<u>5</u>
<u>AMT Positive Categorical</u>	<u>21</u>	<u>1.2</u>	<u>1.3</u>	<u>0</u>	<u>4</u>	<u>40</u>	<u>.82</u>	<u>.98</u>	<u>0</u>	<u>4</u>	<u>61</u>	<u>.95</u>	<u>1.1</u>	<u>0</u>	<u>4</u>
<u>AMT Negative Categorical</u>	<u>21</u>	<u>.90</u>	<u>1.2</u>	<u>0</u>	<u>3</u>	<u>40</u>	<u>.50</u>	<u>.99</u>	<u>0</u>	<u>4</u>	<u>61</u>	<u>.64</u>	<u>1.1</u>	<u>0</u>	<u>4</u>
<u>AMT Extended</u>	<u>21</u>	<u>.90</u>	<u>1.1</u>	<u>0</u>	<u>3</u>	<u>40</u>	<u>.73</u>	<u>.96</u>	<u>0</u>	<u>3</u>	<u>61</u>	<u>.79</u>	<u>1.0</u>	<u>0</u>	<u>3</u>
<u>AMT Omitted</u>	<u>21</u>	<u>.48</u>	<u>.75</u>	<u>0</u>	<u>9</u>	<u>40</u>	<u>.50</u>	<u>1.5</u>	<u>0</u>	<u>9</u>	<u>61</u>	<u>.49</u>	<u>1.2</u>	<u>0</u>	<u>9</u>
<u>AMT Repeated</u>	<u>21</u>	<u>.52</u>	<u>.98</u>	<u>0</u>	<u>3</u>	<u>40</u>	<u>.40</u>	<u>.67</u>	<u>0</u>	<u>3</u>	<u>61</u>	<u>.44</u>	<u>.79</u>	<u>0</u>	<u>3</u>

**6.2279 Correlation coefficients for the psychometric data for the LAC group only (N=21).**

	<u>CDI</u>	<u>AMT</u>		<u>CRSQ</u>			
		<u>Specific</u>	<u>Categoric</u>	<u>Rumination</u>	<u>Distraction</u>	<u>Problem-Solving</u>	<u>Ratio</u>
<u>Age</u>	<u>.323</u>	<u>-.106</u>	<u>.257</u>	<u>.352</u>	<u>-.034</u>	<u>.119</u>	<u>.078</u>
<u>Gender</u>	<u>.392</u>	<u>.202</u>	<u>-.169</u>	<u>.252</u>	<u>-.186</u>	<u>.197</u>	<u>.191</u>
<u>VIQ</u>	<u>.039</u>	<u>.482*</u>	<u>-.294</u>	<u>.324</u>	<u>.104</u>	<u>.207</u>	<u>.202</u>
<u>CDI</u>	<u>:</u>	<u>.276</u>	<u>-.076</u>	<u>.594**</u>	<u>-.148</u>	<u>.080</u>	<u>.555**</u>
<u>AMT</u> <u>Specific</u>		<u>:</u>	<u>-.905**</u>	<u>.442*</u>	<u>.283</u>	<u>.308</u>	<u>.167</u>
<u>Categoric</u>			<u>:</u>	<u>-.268</u>	<u>-.230</u>	<u>-.339</u>	<u>-.005</u>
<u>CRSQ</u> <u>Rumination</u>				<u>:</u>	<u>-.371</u>	<u>.171</u>	<u>.797**</u>
<u>Distraction</u>					<u>:</u>	<u>.352</u>	<u>-.587**</u>
<u>PS</u>						<u>:</u>	<u>-.236</u>
<u>Ratio</u>							<u>:</u>

NB: \*Correlation is significant at the p<.05 level.

\*\* Correlation is significant at the p<.01 level.

### 6.231820 Correlation coefficients for the psychometric data for the control group only.

	CDI (N=40)	AMT (N=40)		CRSQ (N=39)			
		<i>Specific</i>	<i>Categoric</i>	<i>Rumination</i>	<i>Distraction</i>	<i>Problem-Solving</i>	<i>Ratio</i>
<u>Age</u>	.127	.388*	-.443**	.087	-.038	.152	.006
<u>Gender</u>	.156	-.344*	.245	.138	-.006	.391*	-.087
<u>VIQ</u>	.091	.446**	-.356*	.183	.046	-.054	.191
<u>CDI</u>	=	.252	-.205	.559**	.262	.346*	.052
<u>AMT</u> <i>Specific</i>		=	-.797**	.035	.223	-.016	-.006
<i>Categoric</i>			=	.000	-.130	-.013	.001
<u>CRSQ</u> <i>Rumination</i>				=	.067	.391*	.609**
<i>Distraction</i>					=	.469**	-.540**
<i>PS</i>						=	-.288
<i>Ratio</i>							=

NB: \*Correlation is significant at the p<.05 level.

\*\* Correlation is significant at the p<.01 level.

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**6.24 SPSS multiple linear regression output showing that group moderated the relationship between depression severity and the response style ratio score.**

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.297 <sup>a</sup>	.088	.056	1.18480	.088	2.758	2	57	.072

a. Predictors: (Constant), Group, CDI T-score

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ANOVA<sup>b</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.743	2	3.872	2.758	.072 <sup>a</sup>
	Residual	80.014	57	1.404		
	Total	87.758	59			

a. Predictors: (Constant), Group, CDI T-score

b. Dependent Variable: CRSQRatio

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Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-.689	.942		-.731	.467	-2.574	1.197
	CDI T-score	.042	.018	.291	2.302	.025	.005	.079
	Group	-.157	.321	-.062	-.490	.626	-.799	.485

a. Dependent Variable: CRSQRatio

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